

SPECIAL REFINING TOWN

Huge stock retaining apparatus built
heavily to meet Allen's enormous

RAYONIER

INCORPORATED



Product protection and eye appeal are provided for a wide variety of articles by transparent packaging materials made from wood.

Cellophane, and cellulose acetate transparent film and sheet, are used increasingly for packaging food products and flowers—toiletries and tools—clothing and candy bars—cigarettes, and many other articles.

These packaging materials are made from highly purified cellulose derived from wood. Rayonier's job is to produce specially developed types of this chemical raw material for use in manufacturing these protective wrappings.

Producers of highly purified wood cellulose for textiles, tire cord, cellophane, plastics

EXECUTIVE OFFICES:
122 East 42nd Street, New York 17, New York
MILLS:
Hoquiam, Port Angeles, Shelton, Washington;
Fernandina, Florida

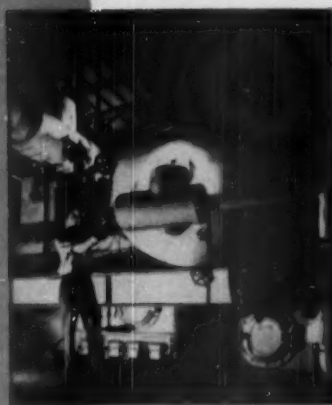
15,690 TONS
of chemical recovery capacity
WITH 102 B&W UNITS
IN 18 STATES



From Florida to
Washington — from
California to Maine —
B&W Recovery Units
serve the nation's vast
wood-pulping industry.

Having a rated fuel capacity totaling almost 50 million pounds of dry solids per day, these B&W units efficiently recover heat and chemicals from waste liquors in kraft, soda, and magnesium bisulphite pulping processes. Since World War II, 31 units have been installed (or ordered), with an average steam capacity of 90,860 pounds per hour.

The performance of these units is proof that B&W has figured prominently as a pioneer in modern recovery techniques for the pulp and paper industry.





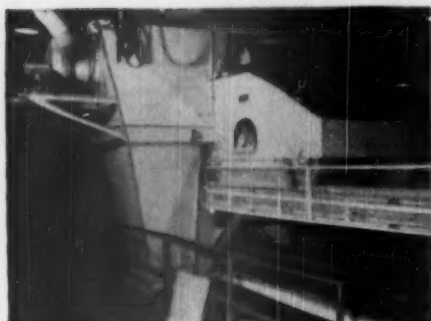
at FIBREBOARD'S New Mill ... Another Handling Job Handled by **LINK-BELT**

Newest, and only chemical pulp mill in California, Fibreboard's San Joaquin Division board mill features many innovations in pulp mill practice. Conveying and feeding operations, however, are performed by time-tested and job-proved Link-Belt conveying machinery.

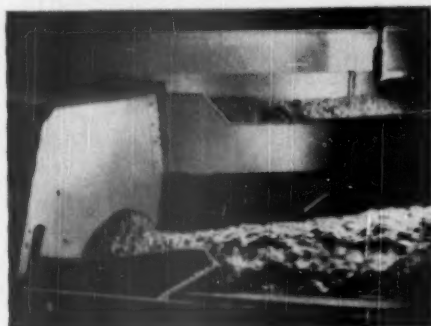
Aerial view of part of the mill buildings and chip silos suggests the extent and importance of the conveying system.



Chips from kraft screens on their way to bleached kraft side, via Link-Belt Belt Conveyor.



Link-Belt Chip Tripper, feeding chips to digesters on the bleached kraft side.



Chips for bleached kraft side are fed from storage silos by Link-Belt Rotary Plate Feeder to belt conveyor.

In this completely new mill, the chip and hot lime conveying equipment was supplied by Link-Belt, including twelve chain conveyors and chain feeders, six rotary plate feeders on chip silos, two chip washer units employing Link-Belt Screw Conveyors, and nine belt conveyors.

Hot lime is transferred from the kiln to storage bin by a Link-Belt Drag Chain Conveyor, and a centrifugal discharge bucket elevator.

Selection of Link-Belt equipment for these important applications is significant testimony to the established quality of Link-Belt products long accepted as standard in the paper and pulp industry.

Link-Belt engineers are ready to assist you in applying these efficient products to your handling problems.

LINK-BELT COMPANY
PACIFIC DIVISION

Plants and Factory Branch Stores at San Francisco 24, Los Angeles 33, Seattle 4.
Offices and Factory Branch Stores at Portland 9, Spokane 13, Oakland 7.

LINK-BELT
CONVEYING MACHINERY
"THE COMPLETE LINE"

The Mills That Made The News Are All Mills Equipped With



MACON KRAFT MILL
NEW AND UNUSUAL FEATURES ADDED

San Joaquin Division,
Fibreboard Products Inc.

E. F. McGINN

GIBRALTAR'S NEW MILL
SPECIAL ATTENTION TO ENGINEERING

Now in full operation at the new
plant and in the mill in the Gibraltar
Headlands, the new mill has
been built to produce a high quality
newsprint paper for the Gibraltar
market.

It is a completely new mill and
has been built to produce a high
quality newsprint paper for the
Gibraltar market.

Gulf States Paper Co.

Shreveport's New Felt Mill

Blair & Sons, Inc.

CROSSETT EXPANSION
TAKES PLACE WITH SOUTH'S LEADERS

Crossett Paper Mills, Co., Inc.
has expanded its plant at
Crossett, Ark., to produce
a high quality newsprint
paper for the market.

Calcasieu Paper Compar

G. H. FERGUSON and E. F. McGINN



Improvements At Could

GREAT NORTHERN CO.
INCREASES OUTPUT 40,000 TONS YEARLY



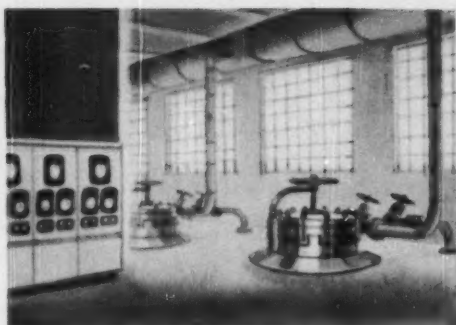
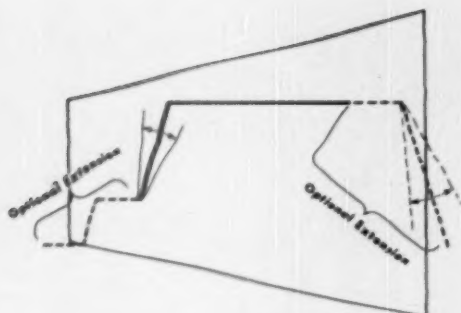
J. O. ROSS ENGINEERING
CORPORATION

MANUFACTURERS OF AIR PROCESSING SYSTEMS

444 MADISON AVENUE

NEW YORK 22, N. Y.

201 N. Wells Street, CHICAGO-6 • 79 Milk Street, BOSTON-9 • 9225 Grand River Avenue, DETROIT-4 • 600 St. Paul Avenue, LOS ANGELES-17
ROSS ENGINEERING OF CANADA, LIMITED, MONTREAL, CANADA • CARRIER-ROSS ENGINEERING COMPANY, LIMITED, LONDON, ENGLAND



Digester Control **WITHOUT CAMS**

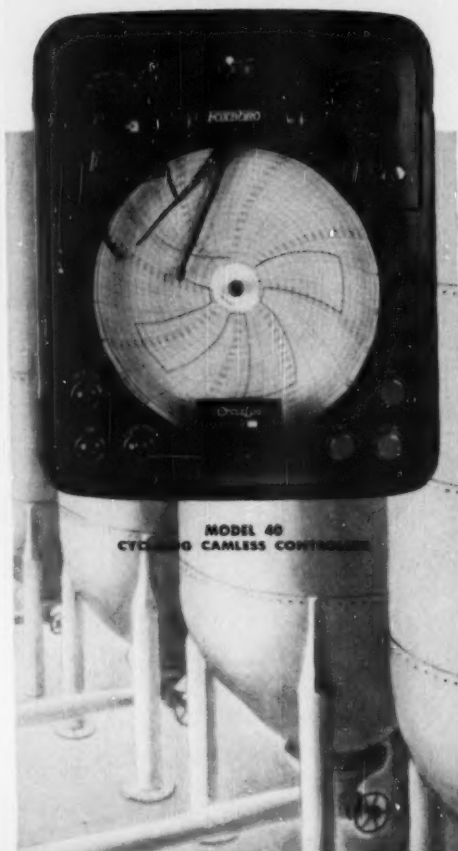
***Easiest, fastest adjustment
for changes in
operating conditions***

At the simple turn of a knob, you can now shift easily and quickly from one complete cooking schedule to another to compensate for changes in liquor or acid strength, moisture content of the chips, type of pulp desired. No cams to cut or change. And established temperature or pressure schedules can be repeated at will, merely by pushing a button!

Other advantages offered by the Model 40 Cycle-Log Controller include: (1) Controlled rate of rise with stepless dial-selection between 0.5 and 7.0°F. per min. (or between 0.5 and 5.5 psi per min.); (2) holding temperature (or pressure) and time period easily set by convenient knobs; (3) continuous chart record; (4) case-contained push buttons and signal lights simplify installation and reduce panel space.

IN ADDITION — an optional feature of the Model 40 CycleLog Controller establishes a constant base temperature starting point for every cook, (with adjustable holding time) eliminating the effects of variable charging temperatures — a "natural" for sulphite cooking.

Find out more about this revolutionary development for pulp mill operation. Write for Bulletin 438, and talk it over with your Foxboro Field Engineer. The Foxboro Company, 254 Neponset Ave., Foxboro, Mass., U. S. A.



FOXBORO

REG. U. S. PAT. OFF.

**AUTOMATIC
DIGESTER CONTROL**

Soft!



This fair-skinned beauty could ask for nothing softer than facial tissue made from SOLKA pulp. A personal product like tissue must be soft, strong, absorbent, pleasing in texture—qualities which SOLKA develops to the maximum.

Brown Company also offers you full use of their Technical Service Division, to help solve your difficult paper problems. Call on them at any time.



This seal assures your customers a product made from high alpha pure wood cellulose. SOLKA is a specification-built cellulose; the best of its kind

A PRODUCT OF  **BROWN** *Company*
Berlin, NEW HAMPSHIRE

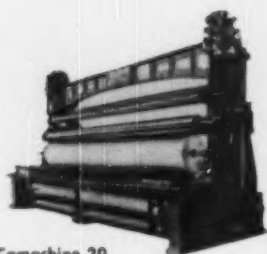
GENERAL SALES OFFICES: 500 FIFTH AVENUE, NEW YORK 18, N. Y.

Branch Sales Offices: Portland, Me., Boston, Chicago, St. Louis, San Francisco, Montreal

SOLKA & CELLATE PULPS • SOLKA-PLOC • NIBROC PAPERS • NIBROC TOWELS • NIBROC KNOTTOWLS • BERMICO SEWER PIPE, CONDUIT & CORES • ONCO INHOLES • CHEMICALS

New Camachines® have stepped up production without increasing costs. Speeds like a mile-a-minute on the big newsprint winders. And 1000 f.p.m. on delicate slitter-rewinder operations where 400 f.p.m. was tops only a few years ago. Along with high speeds are many revolutionary new performance features adding to roll quality, providing greater versatility and more simple operation.

New Camachine performance gives you a great opportunity to increase your production, increase your market and increase your profit. No matter what material you work with—paper, plastic, rubber or textile—you'll please your customers by offering faster delivery of top quality rolls. With the right new Camachine working for you...



Camachine 20

World's fastest paper mill winder, produces top-quality rolls at speeds up to 5000 f.p.m. on newsprint. Features air-operated slitters. Widths from 180" to 300". Rewound diameters to 40" on paper, 60" on board. Write for the descriptive bulletin "Mile-a-Minute."

***you'll find
new customers
everywhere***



Cameron Machine Company • 61 Poplar Street • Brooklyn 2, N. Y.

Camachine engineers will be pleased to consult with you on any roll production problem.

AA-228

PACIFIC COAST SUPPLY COMPANY • PUBLIC SERVICE BUILDING, PORTLAND 4, ORE. • 260 CALIFORNIA ST., SAN FRANCISCO 19, CAL.



WE'LL BE AT **BOOTH 72**

AT THE POWER SHOW

Grand Central Palace
New York City...

NOV. 27 to
DEC. 2

We'd like to drop this in your suggestion box

*...a new, profit-building idea
in valuable Dust Recovery*

The Buell 'SF' Electric Precipitator has set new, higher standards for uniform efficiency in valuable dust recovery.

Installations in more than 180 plants in 14 countries already have given management on-the-job proof of the abilities of the 'SF' design to recover ultra fine dusts, fumes and vapors...to maintain new highs in peak efficiency...to provide a substantial annual profit increase.

Here's why: Extremely advanced engineering thinking has made the Buell 'SF' the only Electric Precipitator that boasts:

1. Patented self-tensioned Spiralectrodes.
2. Exclusive 'Stedi-Flow' dust-fall through continuous cycle rapping of plates-in-line.

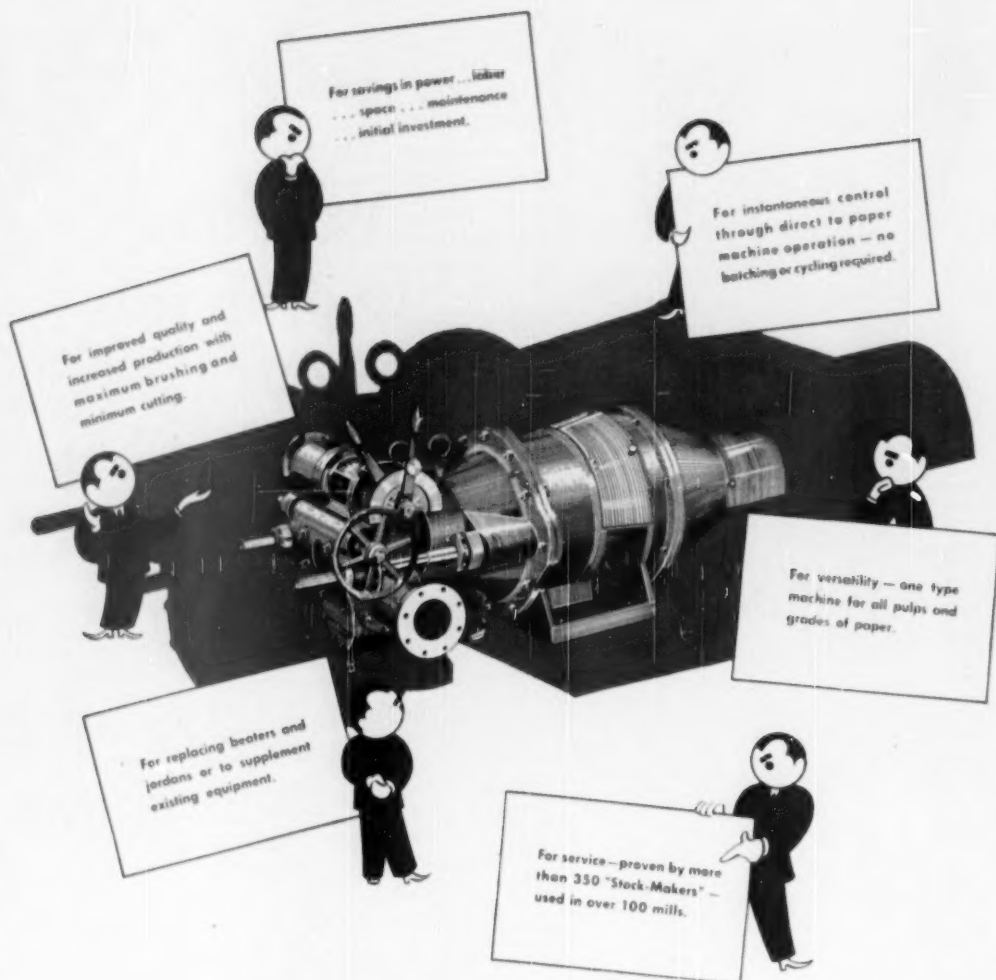
Depending on your plants requirements, the Buell 'SF' Electric Precipitator may be recommended alone, or in combination with a Buell van Tongeren Cyclone System. In either case, you are assured of a dust recovery system that will perform according to a specific fractional guarantee! That means increased profits you can depend on.



For full information on the Buell 'SF' Electric Precipitator, write for descriptive folder today.
Buell Engineering Company, Suite 5027,
70 Pine St., New York 5, N. Y.

buell

Engineered Efficiency in Dust Recovery



Any way you look at it!

The Morden "Stock-Maker"
is superior for
Beating and Refining

FOR SPECIFIC
INFORMATION
CONTACT

MORDEN MACHINES COMPANY
PACIFIC BUILDING — PORTLAND 4, OREGON

in Canada

The William Kennedy & Sons, Ltd., Owen Sound, Ontario

in England

Millspough, Limited, Sheffield

Eastern Sales Representative: Union Machine Company, Fitchburg, Massachusetts



colored bag paper

trades up your dollar volume
at small increased cost

National Technical Service provides practical
help in your mill on formulas and methods for
producing unusual colored papers.

Always call National Aniline first!

National Aniline PAPER DYES

NATIONAL ANILINE DIVISION

ALLIED CHEMICAL & DYE CORPORATION

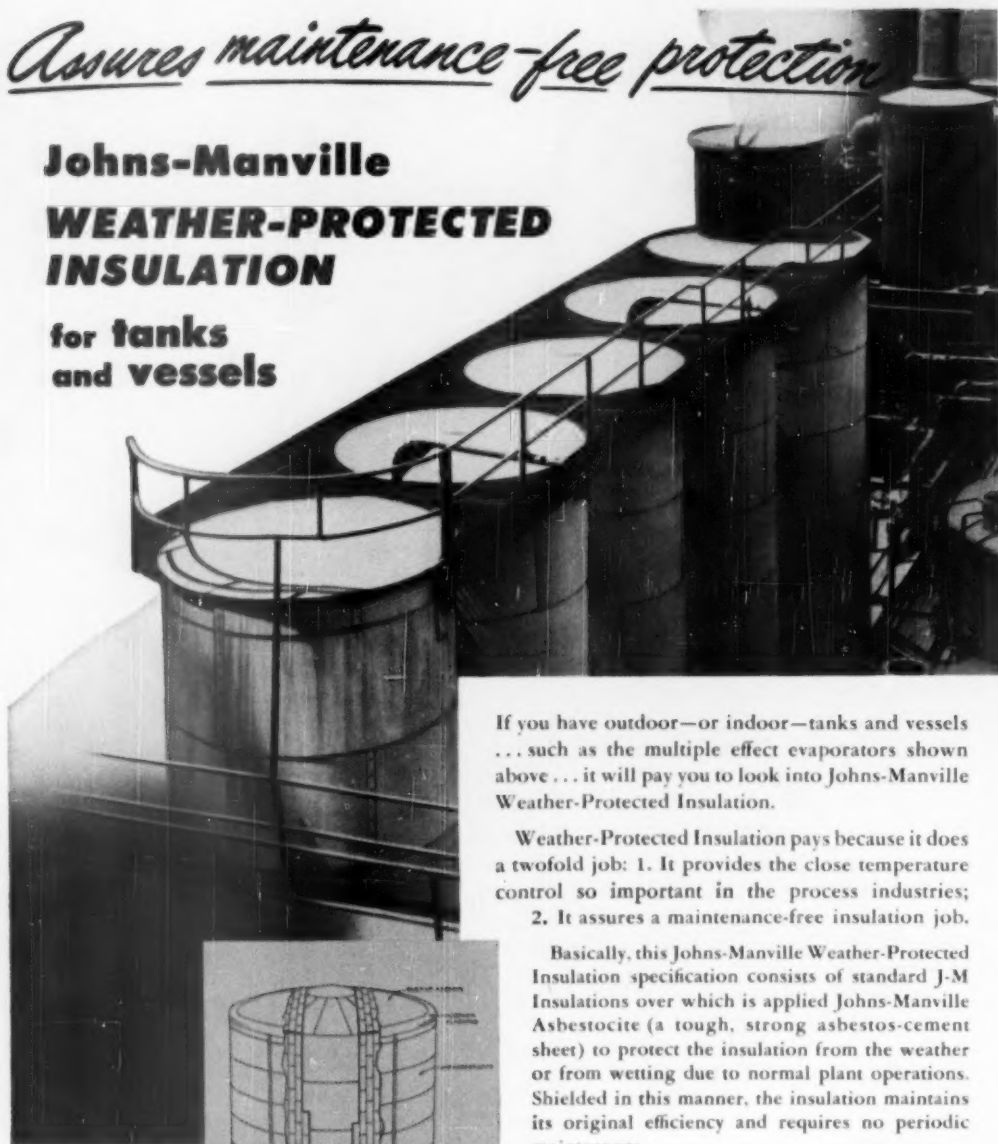
40 NORTH STREET, NEW YORK 5, N.Y.

Branches: Philadelphia, St. Louis, St. Paul, Chicago, New Orleans,
Portland, Ore., Birmingham, Cleveland, Washington, Boston,
Columbus, Pa., San Francisco, Salt Lake City.

Assures maintenance-free protection

Johns-Manville WEATHER-PROTECTED INSULATION

**for tanks
and vessels**



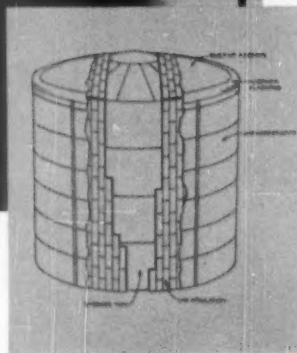
If you have outdoor—or indoor—tanks and vessels ... such as the multiple effect evaporators shown above ... it will pay you to look into Johns-Manville Weather-Protected Insulation.

Weather-Protected Insulation pays because it does a twofold job: 1. It provides the close temperature control so important in the process industries; 2. It assures a maintenance-free insulation job.

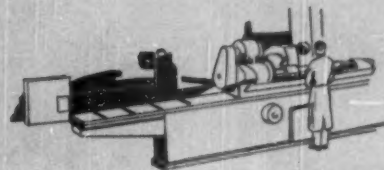
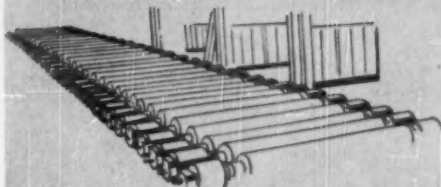
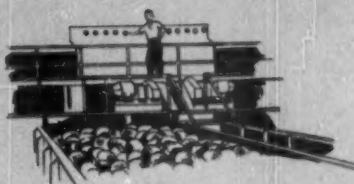
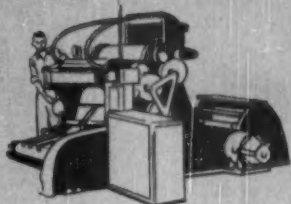
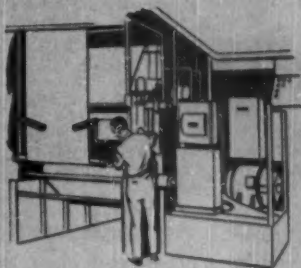
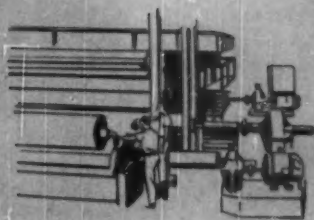
Basically, this Johns-Manville Weather-Protected Insulation specification consists of standard J-M Insulations over which is applied Johns-Manville Asbestocite (a tough, strong asbestos-cement sheet) to protect the insulation from the weather or from wetting due to normal plant operations. Shielded in this manner, the insulation maintains its original efficiency and requires no periodic maintenance.

If you wish, a Johns-Manville Insulation Engineer will be glad to survey your equipment and make appropriate recommendations. For further details, send for a copy of folder IN-121A. Address Johns-Manville, Box 290, New York 16, N. Y.

Cutaway drawing shows how Johns-Manville Weather-Protected Insulation is applied to a tank—Standard methods for mechanical securing of the insulation are used. Asbestocite sheets are then applied over the insulation, following a simplified Johns-Manville specification.



Johns-Manville *first in* **INSULATIONS**



...the Electric Transmission

which provides

**ADJUSTABLE SPEEDS
FROM A-C. CIRCUITS**

STARTING without clutches!

STOPPING without mechanical
brakes or clutches!

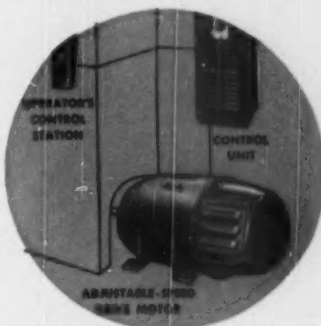
REVERSING without use of gears
or clutches!

JOGGING, INCHING, CREEPING
without slipping clutches!

Call your nearest Reliance Application
Engineer or write today for Bulletin 311
(V*S Drives through 200 horsepower).

...write also for Bulletin
D-2101 describing the

NEW, smaller, low-
cost Reliance V*S
Drive, in sizes from 3/4
to 2 horsepower. Per-
forms all the functions
of mechanical trans-
missions—electrically!



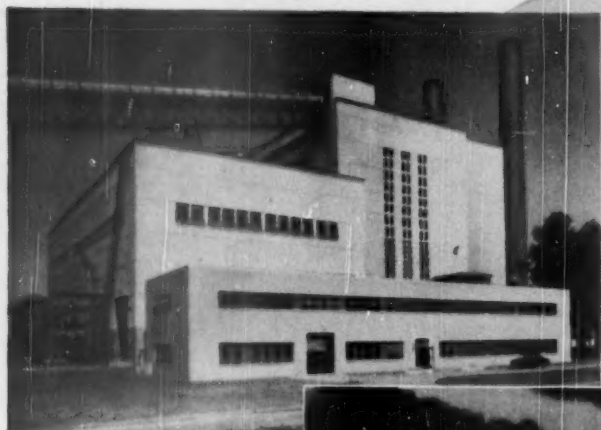
Sales Representatives in Principal Cities

**RELIANCE ELECTRIC AND
ENGINEERING CO.**

"Motor-Drive Is More Than Power"

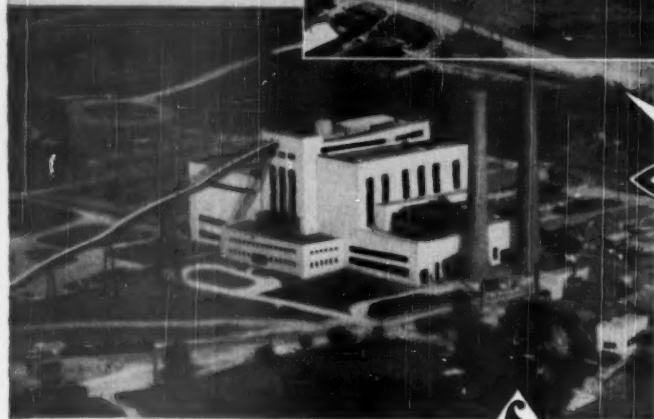
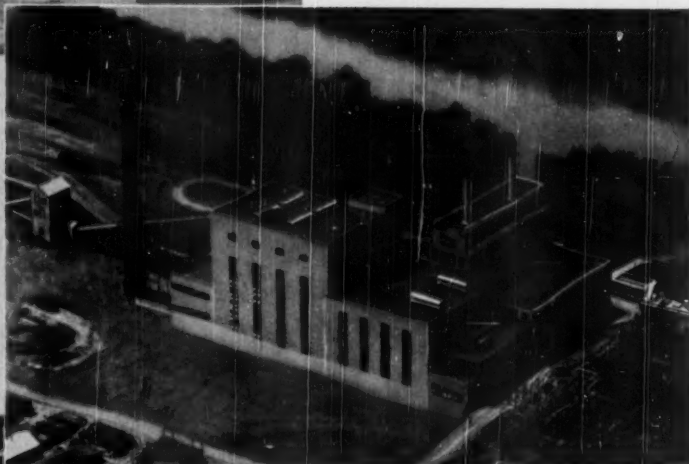
1137 South Lake Street, Cleveland 15, Ohio

WITH THE NEED CAME THE POWER



Virginia Electric and Power Company instituted an expansion program in 1944 to more than double their electric generating capacity. These new power stations and extensions, three of which are illustrated here, are outstanding examples of efficient design for consistently reliable year-in, year-out, high-capacity performance. Facilities for this program, completed and in process of completion, will produce a total of approximately one-half million kilowatts. Design and construction are by Stone & Webster Engineering Corporation.

1. Chesterfield Power Station, first with an installed rated capacity of 50,000 kw, has been extended with an additional installed rated capacity of 60,000 kw.
2. Recently completed Brema Power Station extension, 60,000 kw rated capacity.
3. Possum Point Power Station where an extension of 60,000 kw rated capacity is under construction.

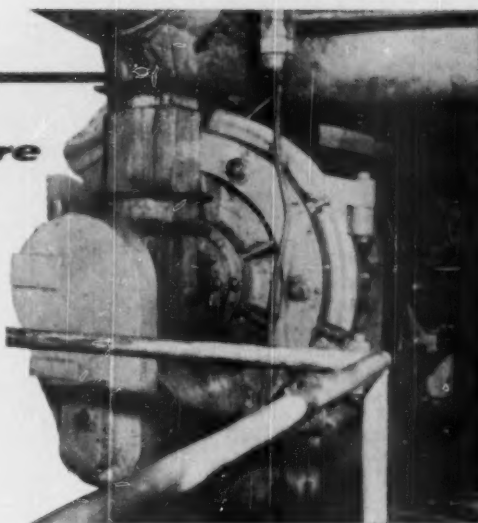


STONE & WEBSTER ENGINEERING CORPORATION
A SUBSIDIARY OF STONE & WEBSTER, INC.

Mills that compare Refiners



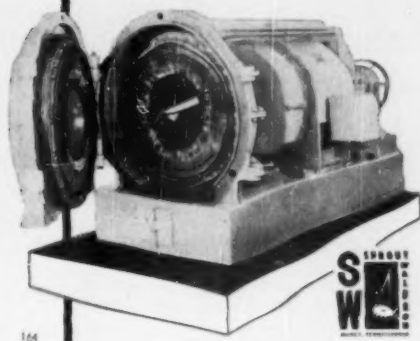
THE RUBEROID INSTALLATION
Sprout-Waldron Refiner Equipment at the
Ruberoid Co., Gloucester City, N. J. plant



choose

Sprout-Waldron

S/W Refiners do a wide variety of jobs—all of them thoroughly and economically. Here are some applications: refining kraft, soda, and sulphite knotted and fine screen rejects; hogged bull screen rejects; knotted and second screen rejects of raw groundwood; semi-chemical chips of all kinds; spent chips after extraction process; bagasse, straw, and similar grasses; breaking down lumps in reclaimed waste paper stock; reduction and refining of rag and other half stocks, etc., etc.



164



The success story of Sprout-Waldron Refiners is easy to understand if you consider these factors:
Here is a high quality Refiner that does more at less cost.

It is ruggedly constructed, precision engineered, and includes the unique Peripheral Control Ring feature.

Great flexibility of adjustment enables you to produce a wide variety of pulp characteristics.

In fact, with the Sprout-Waldron you can pinpoint exact pulp requirements!

ADDITIONAL ADVANTAGES:

Plates are durable, come in many styles . . . are easily changed and inexpensive.

Initial investment in the S/W Refiner is comparatively low.

High production rates, economy in power consumption, ease of operation, adjustment and maintenance, mean additional savings.

A Sprout-Waldron representative will be glad to consult with you on refining problems and explain how these Refiners can step up output and reduce operating costs.

Write today for Bulletin 41 to
Sprout, Waldron & Co., Inc., 32 Waldron St., Muncy, Penna.

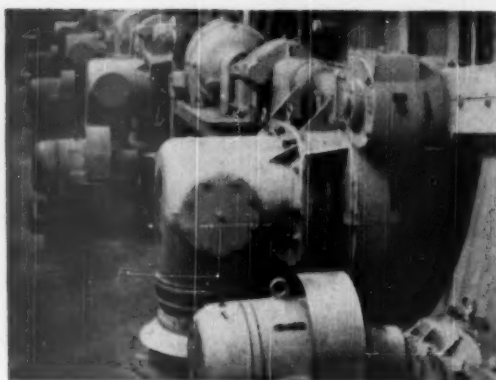
Sprout-Waldron
Manufacturing Engineers
SINCE 1904
MUNCY, PENNSYLVANIA

TEAMED TO BEATERS!

In the Lee Paper Co. mill at Vicksburg, Mich., these beaters are driven by G-E wound-rotor induction motors, supplying the high starting torque required to dislodge settled stock. At left, an assembly of G-E Cabinetrol® centralizes low-voltage motor control in compact units, factory-assembled for lower installed cost and metal-enclosed for better protection and appearance.



Teamed to pay off at



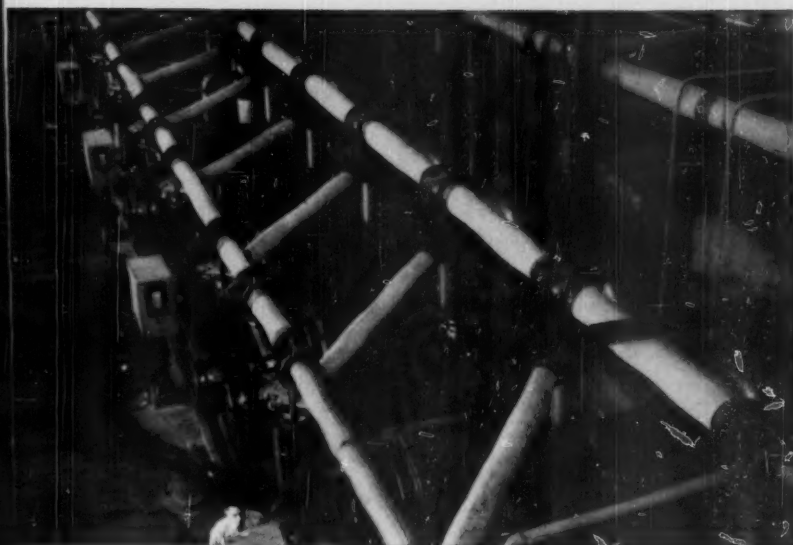
TEAMED TO WASHERS! In the Fibreboard Products, Inc., mill at Antioch, Calif., G-E speed variators (top), enclosed and separately ventilated, give economical, adjustable-speed drive for this multi-stage kraft washer. The floor-mounted G-E totally enclosed, fan-cooled induction motors driving the repulpers between stages are protected against corrosion, water, fumes, dirt and dust.

*Registered Trademark of General Electric Company



TEAMED TO REFINERS! In a southern pulp and paper mill, these G-E 300-hp 2300-volt synchronous motors driving refiners are controlled by a lineup of G-E Limitamp® controllers at upper left. Providing high interrupting capacity at minimum cost to protect high-voltage motors, Limitamp prevents costly repairs due to short circuits, safeguards the paper-mill's production continuity.

GENERAL  ELECTRIC 855-5



TEAMED TO JORDANS!

In the St. Regis Paper Co. mill at Tacoma, Wash., a battery of Jordans is driven by G-E synchronous motors. Advantages of these G-E Tri-Clad® motors include reliability, high efficiency, ability to improve mill power factor, and constant speed regardless of load. Dependable in operation, they're made by G.E. in low and high speed types, with various enclosures to meet paper-mill conditions.

your paper machine!

**G-E equipment and services
for pulp processing help
maintain continuous production
of uniform-quality stock**



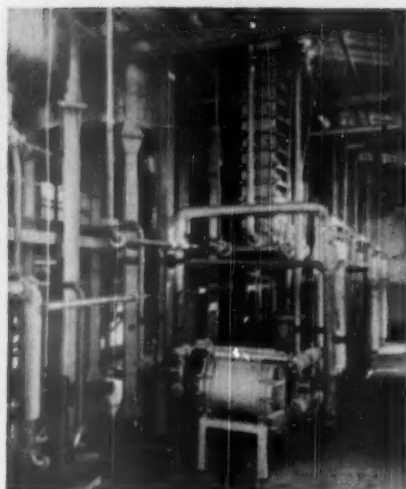
APPARATUS

**— to help cut costs
in stock preparation!**

Teamed up with your stock preparation equipment, dependable General Electric drives reduce production interruptions, help assure uniform-quality stock. That means higher output at the paper machine!

You get the right drive! You may choose motors or turbines, constant speed or adjustable speed, from the wide G-E line. Thus you get the right drive for your pumps, beaters, refiners, agitators, washers, etc. . . . the proper enclosure for every paper-mill condition . . . the most economical voltage level . . . and the right control, full or reduced voltage, individual starters or centralized assemblies for lowest installed cost.

You get equipment plus! When you turn to General Electric, you get far more than fine electric equipment. You benefit from skilled engineering help on application problems—constant pioneering in new ways to cut paper-mill cost electrically—quick service from any of 30 service shops to keep your mill on the go—co-ordinated selection, manufacture, and shipment of electric equipment to simplify ordering, save your engineers' time, meet your construction schedules. That's why it pays to call in your G-E representative on your mill modernization plans. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

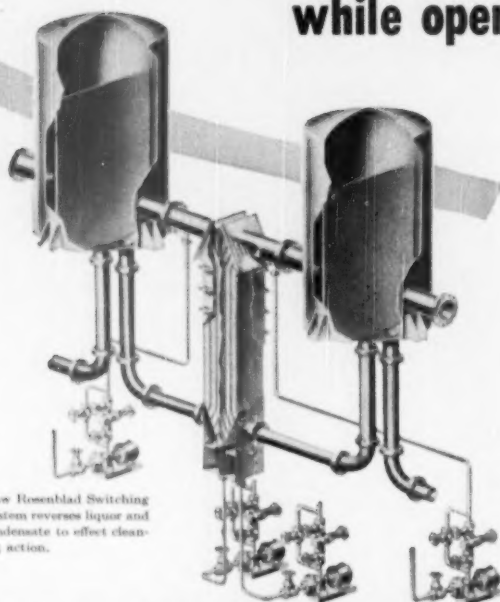


Evaporator installation
with Rosenblad* Channel
Switching System.
*Patents Applied For

*an
important
advancement*

**REVOLUTIONARY ROSENBLAD
SWITCHING SYSTEM ELIMINATES
HIGH COST OF REMOVING SCALE**

new Conkey Evaporators de-scale while operating at full capacity



How Rosenblad Switching
System reverses liquor and
condensate to effect clean-
ing action.

Scale—bugaboo of many a paper mill—can now be conquered, simply and economically. By using the new Conkey Flat Plate Heating Surface Evaporators with the Rosenblad* Channel Switching System, surfaces subjected to boiling liquor are periodically *switched* with those in contact with vapor and condensate—thus cleaning the heating surface thoroughly, during normal continuous evaporator operation.

Self-Cleansing switching design not only reverses liquor and steam side of heating element: *all* parts of equipment are switched, washing away scale with condensate from pipe lines, valves, vessels—in addition to heating surface. And there is no interruption of the evaporation cycle. System has been thoroughly tested and proved by installations in Scandinavia.

Write for Bulletin R-1

GENERAL AMERICAN TRANSPORTATION CORPORATION

PROCESS EQUIPMENT DIVISION

Sales Offices: 10 East 49th Street,
New York 17, New York

General Offices: 135 South LaSalle Street,
Chicago 90, Illinois



Sole licensee in the U. S. A. for the A. B. Rosenblads
Patented Evaporator Switching System.

OFFICES IN PRINCIPAL CITIES

Other General American Equipment: Turbo-Mixers, Evaporators, Thickeners, Dewaterers, Dryers, Towers, Tanks, Bins, Kilns, Pressure Vessels



DOCTORS

completely engineered

by LODDING

are essential

for today's

high-speed

production

Lodding Engineering Corporation, Worcester, Mass.

Represented by W. E. Greene Corporation,

Woolworth Building, New York

POWELL RIVER

UNBLEACHED
SULPHITE PULP



- ★ STRENGTH
- ★ COLOR
- ★ SERVICE
- ★ DEPENDABLE
SUPPLY

**POWELL RIVER
SALES COMPANY
LIMITED**

1201 STANDARD BUILDING - VANCOUVER, B. C.

Bingham

PRECISION BUILT FIELD PROVEN PUMPS

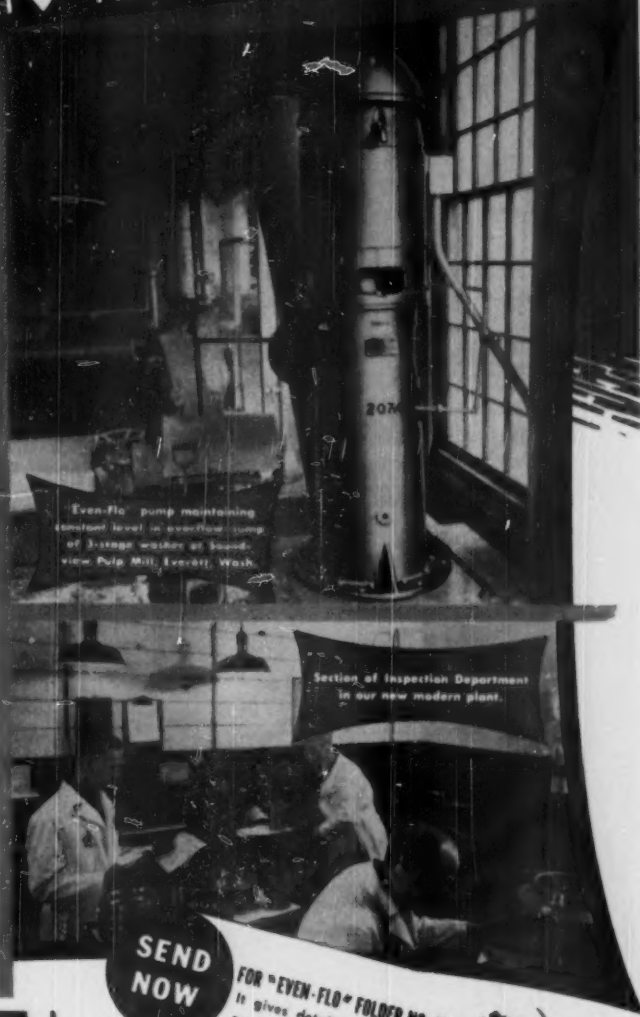
"Even-Flo" Pumps

WILL NOT BECOME Airbound

Bingham "Even-Flo" Pumps discharge with an even non-pulsating flow regardless of variation in supply. An outstanding feature of the Bingham "Even-Flo" Pump is maintaining a constant liquid level at the suction no matter how varied the incoming supply may be.

Bingham "Even-Flo" Pumps are being used effectively in the Pulp and Paper industry for such services as: • Primary and Secondary Screen Transfer • Seal Pits for Barometric Legs • White Water and Stock Chests • Mill Sewage and Waste Liquor Sumps • Sludge Collecting Chests • Acid Sumps • Fan Pump • Washers • Save-Alls

• • •
Bingham "Even-Flo" Pumps, like all Bingham products, are precision built in our new, modern plant. All rotating parts are dynamically balanced. All parts requiring close tolerances are ground on heavy duty precision grinders. Each part is subjected to rigid inspection by craftsmen who for years have been trained to follow Bingham's high standards of manufacture.



SEND
NOW

FOR "EVEN-FLO" FOLDER NO. 36
It gives detailed information
on this remarkable pump.



PUMPS
SINCE ▲ 1921

GENERAL OFFICES:
705 S.E. Main Street
Portland, Oregon

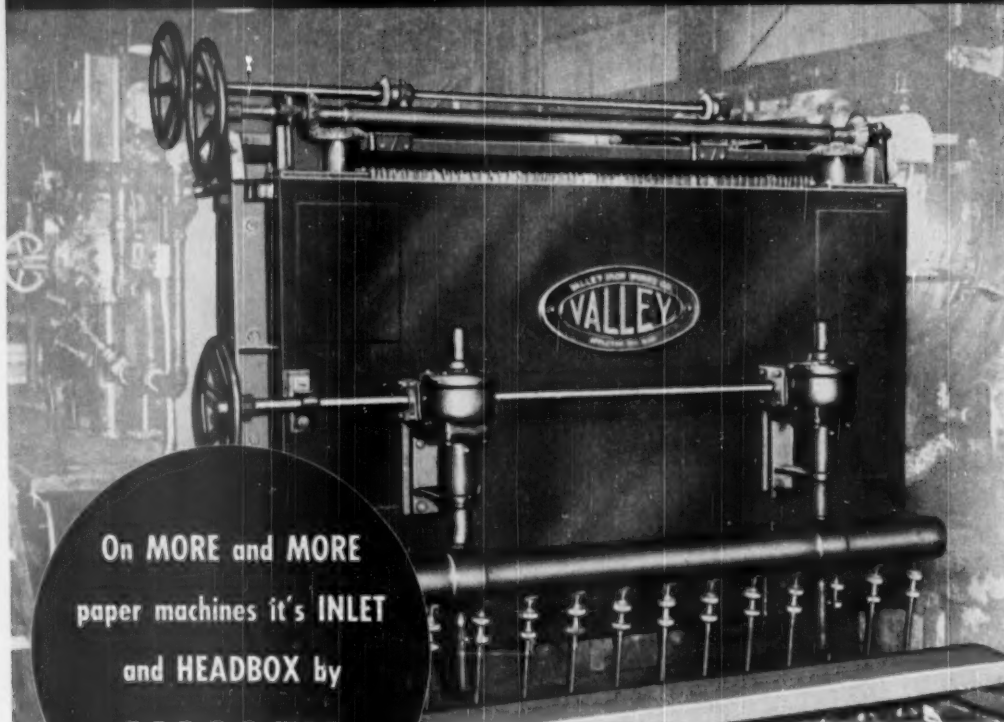
FACTORIES:
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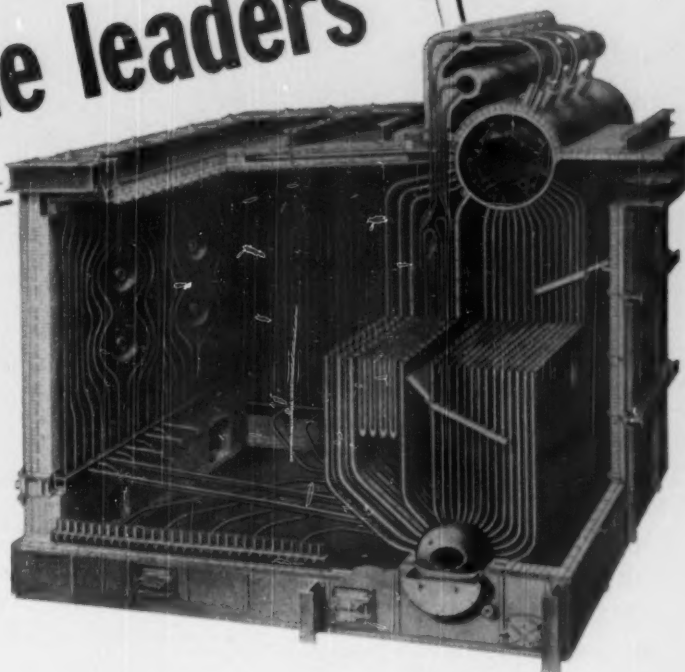
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Dryden Paper Co., Ltd.
Eddy Paper Corp.
Fraser Companies, Ltd.
The Gardner Board & Carton Co.
Great Lakes Paper Co., Ltd.
Gulf States Paper Corp.
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Marathon Paper Mills of Canada, Ltd.
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Nanaimo Sulphate Pulp Ltd.
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Nekoosa-Edwards Paper Co.
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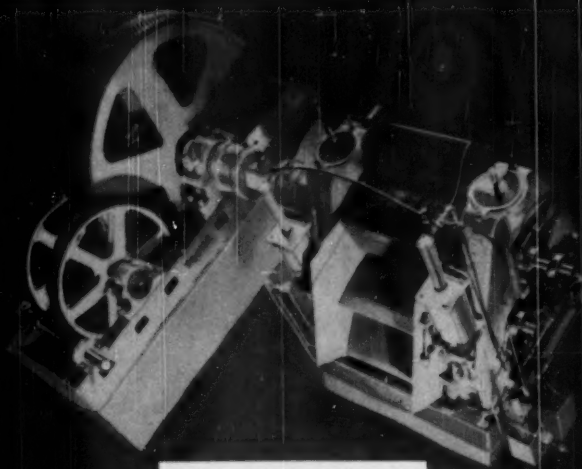
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November 1950

21

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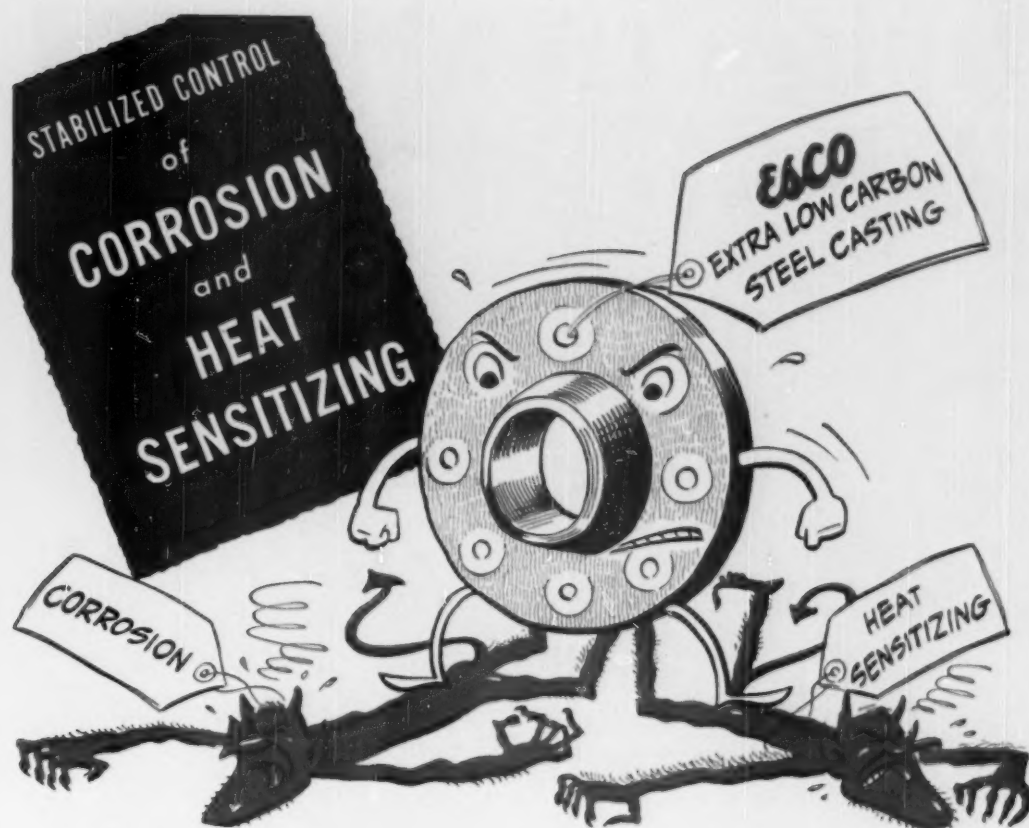
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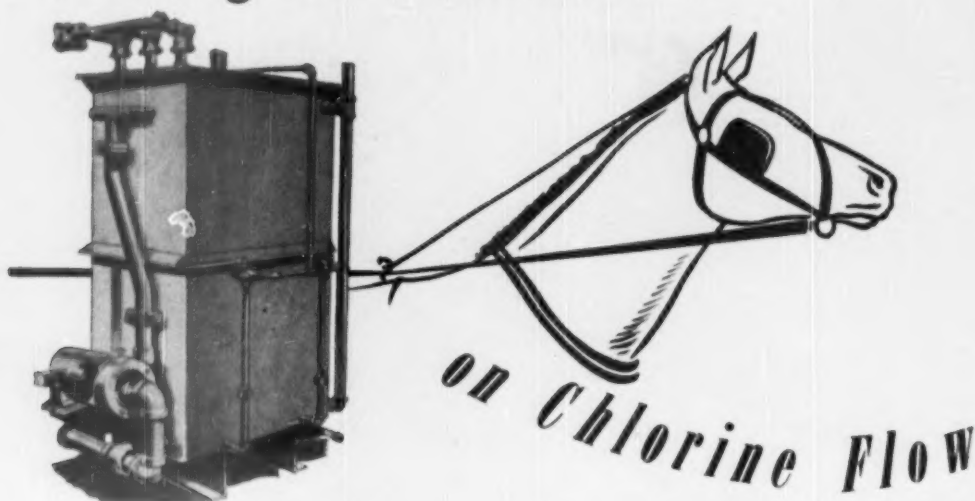
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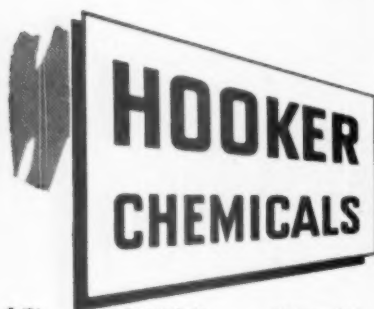
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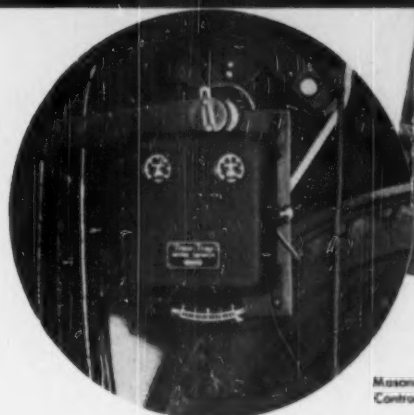
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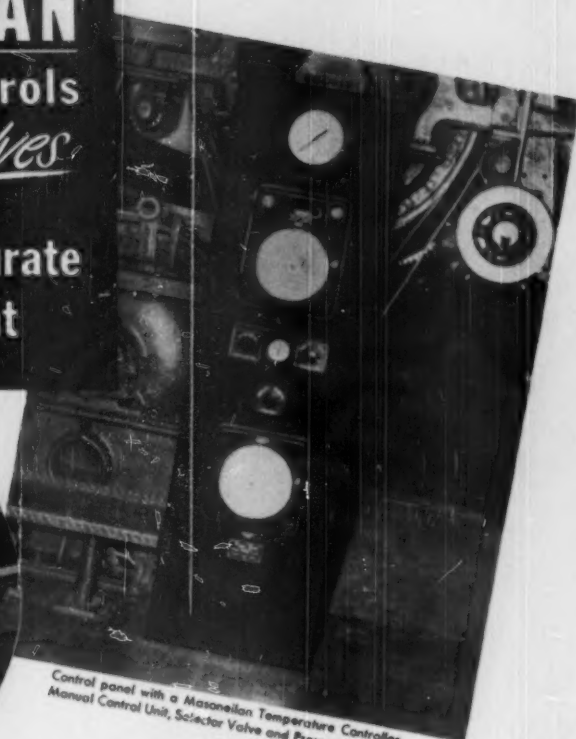
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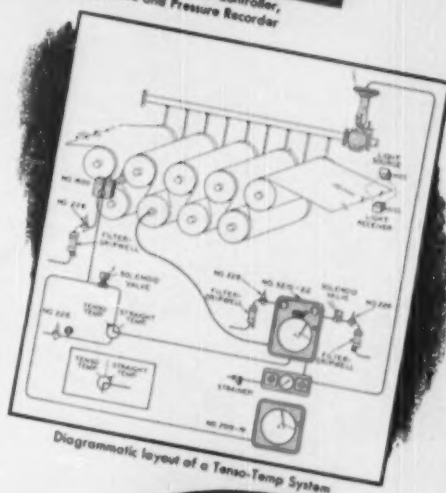
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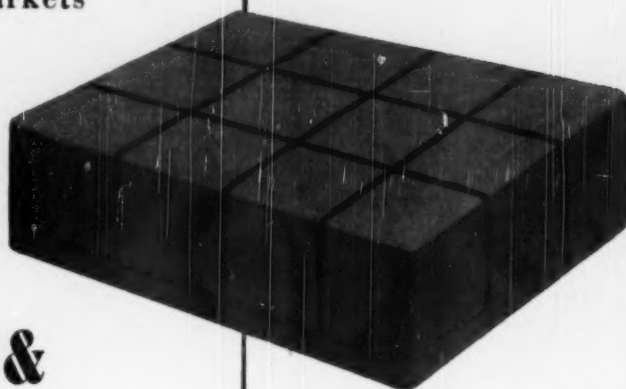
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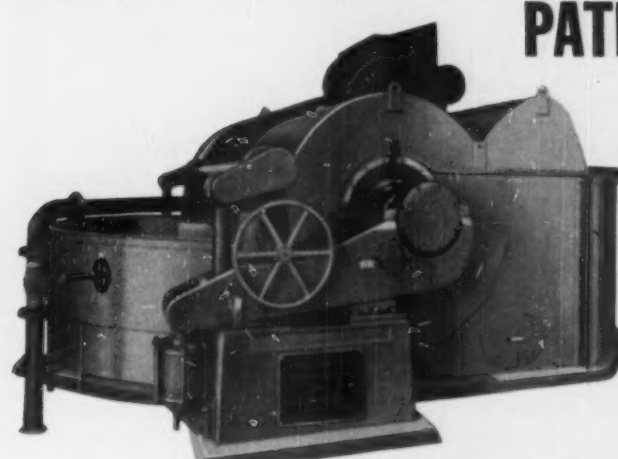
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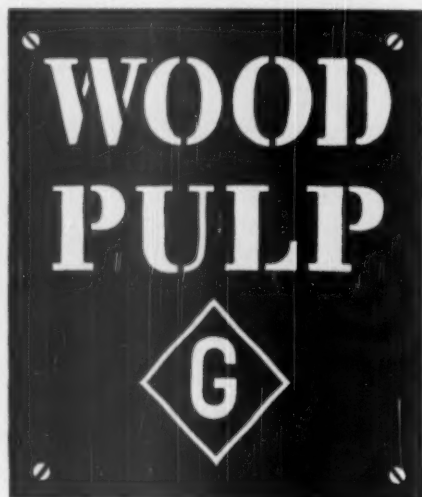
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PULP & PAPER

"The Cellulose Age"

PRODUCTION AND MANAGEMENT JOURNAL
OF THE
PULP, PAPER AND BOARD INDUSTRY

A MILLER FREEMAN PUBLICATION

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Who's for the Brannan Plan?

Employees and investors in the pulp and paper industry should know—before election day—who's for the Brannan Plan, anyway—the plan whereby the government can build pulp mills in competition with private industry, can dictate to small and big timber owners how much wood they can cut, when they can cut it—and virtually every other decision on which they now have free choice?

The osculating-champion vice president, Alben Barkley, says he is not committed to it. He says the Democratic party is not committed to it. But Secretary Brannan is a member of the cabinet and highest councils of government. President Truman doesn't say anything. How about your senator and congressman? What do they say? Wouldn't it be worth knowing before November elections—instead of afterward?

How to Get More Production

We have been talking lately to industry men who spent some years in Washington last war. Some were slated already to go again. All would go again if asked.

The talks reminded us of fatalities in the industry toward the end of World War II and soon after V-J Day. Then came the President's demand for a good many billions to "disperse" some government activities to neighbor states—not far away.

It occurs to us that much less dislocation of manpower and production would occur if the few government officials engaged in Commerce and NSRB, at least occasionally, would travel to New York or Chicago to meet industry leaders on the committee instead of the latter (greater in number) running on overburdened transportation facilities into an overcrowded capital. After all, the idea of all this joint activity is more production. It would seem that is best gained by making it easier for industry rather than government men.

A fantastic notion? Probably.

Ready and Willing to Serve

Even though their civilian demand has reached high levels, and they are necessarily concerned with satisfaction of their long-term customers, the pulp and paper industries have recently voluntarily shown a willingness and a desire to take on more government orders to assist in the war effort.

It is of some significance because on the eve of the war—just for civilian demand—the U. S. industry was breaking all previous production records.

This is the definite intention of large segments of the industry, in a spirit of voluntary cooperation, such as was notable throughout World War II, even after ill-advised government acts and lack of action had then irreparably reduced much of the national pulp and papermaking capacity in mills and the labor in the woods.

The essentiality of pulp and paper is recognized today—as it was not in official high places from 1939 to almost 1943.

PULP & PAPER has been advised by the Office of Public Information, Department of Defense, that as of the date of publication of this issue, Army Ordnance had not yet issued any call for dissolving pulp for nitrating purposes. It was used in later stages of World War II to fire most army medium and large guns. And the pulp industry today is far better prepared scientifically and physically to meet such demands.

But many other requirements for paper are increasing. As all essential production for mobilization rises, paper and paperboard demands tend to keep pace. The government orders for food, for clothing and bedding, for other equipment as well as ammunition and guns for military personnel automatically makes a proportionate amount of paper and paperboard for packaging a war requirement.

The pulp and paper industry is ready and anxious to serve and is already doing so.

"Dog Bites Man"

They say it's "news" when man bites dog—not when dog bites man.

If that old bromide is authentic, then there was really "news" this past month from the Kalamazoo Valley!

The technical group—TAPPI's section there—gave a cocktail party in honor of "The Salesman," in Kalamazoo's Columbia Hotel before a dinner meeting on Oct. 5.

A. T. Luey, technical engineer at the Sutherland Paper Co. in that city, wrote us that the party for "The Salesman" was "a token of appreciation of his unlimited help and support during the year."

In the old days, it was a foregone conclusion that the salesman always did the treating. It's sort of refreshing to see the tables turned, making salesmen the guests. This kind of thing adds to the stature of the industry and its associations.

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NEWS IN BRIEF • • • AND BULLETINS

TWO COATERS AND BLEACH PLANT FOR WARREN MILL

Cumberland Mills of S. D. Warren Co., Boston, Mass., has completed an improvement program detailed in PULP & PAPER earlier and now contemplates further additions. Funds have been set aside for two new coating machines, new bleach plant, and extensions to pulp mill. George Olmsted, Jr., president, and chief of APPA this year, also announced two new printing grades to be promoted as Printone and Silkote. The recent improvements terminated with a pair of barking drums, conveyor system in the wood yard, two new digesters, and two 140-inch calender stacks in a building added for them. Five machines here have all been completely rebuilt over a period.

POSTPONE PROJECT FOR ARKANSAS MILL

Frederick H. Dierks, president of Dierks Lumber & Coal Co., one of the biggest lumber operators of the South, and executive vice president of the proposed White Star Paper Co., at Prescott, Ark., said in a letter to PULP & PAPER that "our proposed paper mill project has been indefinitely postponed because of recent war developments and the national defense program." Dr. Charles Carpenter, still employed as consultant for the project, has been doing research work in various locations recently in the South.

BELLINGHAM MILL COMPLETES EXPANSION

Pacific Coast Paper Mills of Washington, Bellingham, Wash., makers of M-D tissue, completed an \$800,000 expansion in early October, starting up its new Beloit 84 in. Four-drummer machine and 12 ft. Yankee Dryer to make dry crepe tissue, such as facial and toilet, according to F. J. Herb, president. A new E. D. Jones & Sons Pulp-Master was included in auxiliary equipment added. The new machine, its third, is designed for 2,000 f.p.m. As a result, Pacific Coast has grown from a \$75,000 plant in 1925 to a present \$2,000,000 concern.

EVERETT PULP & PAPER ORDERS 160-INCH MACHINE

Everett Pulp & Paper Co., Lowell, Wash., only soda wood pulp mill in the West, which now has three Fourdrinier machines making about 80 tons daily of book, super label, offset book, tablet, bond, mimeograph and writing will increase production 50% by adding a new 160 inch Pusey & Jones machine, according to William J. Pilz, company president and manager. Anson B. Moody is vice president and assistant manager, and G. A. Blomberg, secretary. Tonnage will be brought to about 50,000 a year and 150 to 200 employees will be added. It will make similar papers to those now made, starting up in early 1952. From the first in 1891, all Everett machines are Pusey-Jones.

HOWARD SMITH PLANS NEW MACHINE

Howard Smith Paper Mills is planning to install an additional paper machine at its Cornwall, Ont., mill and this will increase capacity by approximately 50%. This is part of a \$3,000,000 expansion program recently launched. Work has already started on erection of a new steam plant. The paper machine's daily capacity will be 60 to 65 tons of bond, ledger, offset and similar paper grades, and it will boost by about 30% the combined capacity of Howard Smith's Cornwall, Beauharnois and Crabtree plants.

IMPROVEMENTS FOR LOWE

An improvement program which will probably include a new paper machine is reported from the direction of Lowe Paper Company, Ridgefield, N. J., but could not be verified as this issue went to press.

COLORADO PROJECT LOOKS GOOD

From a reliable source PULP & PAPER learned recently that progress toward the newsprint project led by Preston Walker, publisher at Grand Junction, Colo., seems favorable. The timber purchase must be completed by January 1st, 1951, and it is reported that Mr. Walker is gaining support from a group of Colorado capitalists, as well as interest showing from outside the state. Possibility of another paper product in conjunction with newsprint has been discussed.

CONTAINER FIRMS BUY MOBILE MILL

Frederic R. Mann, president of Seaboard Container Corp., and Norman H. Stone, president of Stone Container Corp., announced that they have purchased the fixed assets of the Mobile Paper Mill Co., of Mobile, Ala. The new firm will operate under the name of Stone-Mann Paper Co. Marvin N. Stone of Chicago is the new general manager and Yale Mann of Philadelphia is assistant general manager.

SALE OF LONGVIEW MILL DROPPED

It has been reliably learned that negotiations for purchase of Pacific Paperboard Co. of Longview, Wash., have been abandoned. They were being conducted with a prominent containerboard firm, but due to the big upturn in business, were discontinued.

MAY BRING FINNISH MILLS TO AMERICA

Project Engineer J. A. (John) MacArthur, Stadler & Co., Montreal, left for Finland Sept. 17 to consult on request of the Finland Paper Association with the following mills: Anjalä, Kymmene, Woikka, Warkaus, Karhula, Eklof, Tako, Kyrö and Koukopaa. Also Tampella and Wartsila, regarding the possibility of using their equipment as manufactured in Finland on this continent. He will then visit Norway to consult with 4 mills at Skien, returning by way of England.

Union Raises Tax For Pulp and Paper Members

The AFL Brotherhood of Pulp, Sulphite and Paper Mill Workers held its 1950 International Convention in Portland, Ore., in August and raised the per capita tax of members from 75 to 90 cents per month.

President John P. Burke and all other international officers were re-elected. Salary of the president was raised to \$150 per week and of the ten vice presidents and other officers from \$110 to \$125 per week, and of the top field representatives, to \$110. Per day travel expense was raised from \$8 to \$10.

Paul L. Phillips, president of the Brotherhood of Paper Makers; Gov. Douglas McKay of Oregon; Vice President Alexander Heron, of Crown Zellerbach Corp., and Mayor Dorothy McCullough Lee of Portland, were guest speakers.

An 11th vice president for Western Canada was rejected but a Canadian resolution to study "profit sharing," while not approving it, was approved "in principle." The union was directed to continue efforts to equalize U. S. and Canadian wages and to strengthen seniority clauses in contracts. Also, to seek double time for holiday work, whether paid or not, with an additional paid day the following week with time off (this day may be an employee's employee's day off).

A proposal that the next convention be held in the South was taken under consideration.

Moss Point Getting New B & W Boilers

Two new high pressure, gas fired steam generating power boilers for the new power plant at International Paper's Moss Point, Miss., mill will be supplied by Babcock & Wilcox.

Other suppliers for the Moss Point expansion of 200 tons a day of milk bottle and other bleached kraft—over present 250 tons output of paper—were previously reported. Beloit is building the 1,800 f.p.m. machine, which will have an elaborate Ross Engineering air system. Chicago Bridge is supplying new digesters; Goslin-Birmingham, evaporators; Impco and Oliver the additional washers. Two new General Electric turbogenerators and Westinghouse helpers for the Beloit machine were ordered.

CALENDAR OF MEETINGS

- TAPPI-Pacific Coast—Camas, Wash.—Nov. 7.
- TAPPI-Lake States—Hotel Northland, Green Bay, Wis.—Nov. 14.
- TAPPI-Fibrous Agricultural Residues Conf.—Northern Reg. Research Lab., Peoria, Ill.—Nov. 12-13.
- SUPTS.-Pacific Coast Div.—Longview, Wash.—Dec. 5.
- CANADIAN Pulp and Paper Association, Mount Royal Hotel, Montreal—Jan. 24, 25, 26.
- PAPER WEEK—APPA and Salesmen at Waldorf-Astoria, TAPPI at Commodore Hotel—Feb. 19-23, 1951.
- SUPTS.—National Convention—Multnomah Hotel, Portland, Ore.—June 24-29, 1951.
- SALESMEN—Paper Industry—Midston House, New York City—Every Mon. noon.

PULP CONTROL PLAN

FOREST SERVICE POWERS LOOM

As this issue of *PULP & PAPER* went to press in mid-October the biggest news in the industry—indeed in the whole wood-using industries picture of the U. S.—was the possibility that pulpwood, and pulp as well, might come under the jurisdiction of the Department of Agriculture insofar as industry mobilization is concerned.

This would mean, of course, that pulp logs and pulp for paper manufacture would operate as to possible priorities and controls and allocations directly under the U. S. Forest Service, division of Agriculture.

Certain other world developments affecting the industry make it entirely possible that, in turn, this would mean coordination with certain international agencies such as FAO of UN's Forestry Division and the ERP's international council. And this, in turn, could very well meant effort toward some kind of international controls and allocations.

Both Mathias Niewenhaus, chief of the forest products division of NSRB, and LeRoy Neubrech, recently appointed head of pulp and paper for NPA in Commerce, said they had no official knowledge of a plan of transfer. Mr. Niewenhaus, however, confirmed the fact that NSRB and other agencies had received numerous phone calls and wires on the subject.

If, when this copy of *PULP & PAPER* reaches you, the topic has subsided, it will be, in all likelihood, because of concerted industry protest to the National Production Authority, probably submitted by action of APPA and possibly affiliated groups, via this industry's Advisory Committee.

The transfer of control to USFS seemed possible on Oct. 10, according to reliable sources. A few days previously this industry had submitted data requesting that pulp be excluded from priorities and placed on the "A" list of commodities freed from D. O. and AEC pressures applied directly or by extension from paper mills in receipt of defense orders under NPA Regulation No. 2. On Oct. 10 it appeared likely that the pulp industry would be granted its request.

When the idea of transfer from Commerce to Agriculture leaked out of Washington, this picture was fogged, for broader controls than presently planned could be the sequel. Queries and protests began rising in the industry and although he would make no comment, E. W. Tinker, executive-secretary of APPA, was alertly examining what apparently had become more than persistent rumor.

Charles Tebbe, assistant to Chief Forester Lyle Watts, now in charge of mobilization matters in the Forest Service, stated to this magazine via a reliable top associate, that USFS knew of no such plan, nor had it been invited to discuss it. From a source outside, however, it was indicated that the Forest Service did hope, for reasons it felt practical, to handle certain logging and wood-using statistics, the title to which is now clouded due to vesting mobilization activities within existing bureaus.

It was learned reliably that several top executives of this industry were individually so concerned over the rumors of

Atchison Returns with News

Joseph E. Atchison, who heads up the pulp and paper branch of the industry division of ECA, returned from Europe recently and advised *PULP & PAPER* of recent procurement authorizations for pulp, paper and paper products issued the first week in October. Cumulative authorizations totaled \$106,200,000 by the end of August. The following were in the announcement mentioned above: \$2,000 for purchase in U. S. to the Netherlands; \$40,000 for purchase in the U. S. to Greece; \$22,000 to Indo-China, through the procurement agency of the General Services Administration; \$35,000 to France. Contract periods and terminal dates vary, but run from August 3 to July 31, 1951. Newsprint is excluded from the paper and paper products items to be purchased.

the proposed shift of control to the Forest Service that they were making personal inquiries.

Experts in the industry pointed out in the excitement of mid-October when the possibility began to leak through from Washington, the transfer as a solution to the domestic problem of wood mobilization appears to make a lot of sense. The U. S. Forest Service has the manpower and the type of manpower theoretically trained in problems of the forests and logging. If it is practical to coordinate logs for lumber with lumber as a raw supply for finished product, it would be in many minds as practical to coordinate pulpwood logs and pulp under one agency.

Fear of the U. S. Forest Service as to its abilities and purposes were not involved in industry objections being voiced informally as this issue went to press. However, there has been the unwitting and perhaps not always willing juxtaposition of the U. S. Forest Service in recent years with international wood organizations. The not infrequent objective of the latter, as *PULP & PAPER* pointed out long ago, has been world control of wood and pulp whenever, indeed, its purposes are not entirely obscure.

Particularly, nearly a year and a half ago in our June, 1949 issues—the lead editorial on the Forest Service, the "Case for the Forest Service" on page 28, and on page 32 of the same issue—our report on the world pulp conference—pointed up these trends.

Chief proponent of world control of wood has been Egon Glesinger, whose position as chief of the forest products division of the Food and Agricultural Organization of United Nations does not

entirely explain his marked influence in forestry circles throughout the world and now, particularly, in the U. S. Before fleeing Hitler's Germany, he made some progress in the formation of a world wood organization on the continent. That ambition was brought to the U. S. and took shape, largely by his efforts, in a forestry branch within the United Nation's FAO. However, he appeared first in this country merely as a wood expert and author of *Nazi in the Woodpile* and author of magazine articles supporting wood as of world influence, an idea fairly new in the U. S. as recently as 1944.

That Mr. Glesinger and FAO caused the first talk of transfer of pulpwood and pulp to Agriculture has not been indicated, but it is considered significant that in choosing a vehicle for his revived world wood organization, Mr. Glesinger and his associates chose the Food and Agricultural aegis to parallel the U. S. set-up of forestry under Agriculture. Looking back over his activities during the past five years, no industry leader familiar with them could discount his foresight and the international steps and accidents leading into the October phase.

There were other factors of significance, as follows:

In the ERP Council session in Europe Oct. 7, the U. S. and Canada for the first time sat in as participating members. It was announced that the plan is no longer a "recovery" program, but a defense program. It was also announced that questionnaires are to be sent to all participating countries, and on these they are to state their needs for raw materials as well as finished products.

There are a number of facets to that ERP announcement, but underlying it was a fact not seen clearly as troops crossed the 38th parallel under UN banner. Industry mobilization is not concerned alone with armaments, but also with ERP and ECA and the 4-Point Program and UN appropriations. This appears behind the government's acceleration and insistence on new agencies and regulations even with victory in Korea.

Significant to this industry is word from Torquay, England, that the tariff meetings there intended to take up further reduction of U. S. tariffs for foreign papers as soon as the Schuman plan discussion is completed. This would be in complete by-pass, on the part of the State Department, of the testimony in Washington a few months ago of all leading segments of the pulp and paper industry which stated that the effect of the first two rounds of tariff cuts should be observable before State allowed a third.

The fact that State and the military are riding high in current events would, the

best observers believe, have the profoundest effect on a transfer of wood and pulp to Agriculture and thus to U. S. Forest Service.

The possibility of such a move suddenly put into the shade the problem of NPA's Regulation No. 2 with its blanket priority system and its extendable priorities.

Hardly had the Advisory Committee to NPA within Commerce voiced its objections, and coincidentally the American Pulp Consumers group, representing 265 non-integrated mills, notified National Production Authority Chief Gen. Wm.



Henry Harrison (shown in picture)—he is president of Int. Tel. & Tel.—that it, too, preferred its raw supply excluded from the priority system and put on the "A" list—than this new picture took shape in Washington. Members of the U. S. Pulp Producers had just arrived in New York prior to a special meeting next day, Oct. 10, for policy discussion.

Forgotten for the moment were possible problems in connection with a single "D. O." or "AEC" priority in which packaging—itsself possibly consuming wood and pulp—would be considered an ingredient of the product. Forgotten was the fact that the lower priced pulp would attract holders of priority orders in such numbers that its manufacturers could guarantee not a single ton to a non-defense customer. Also forgotten was a problem NPA had already promised to fix: The probability that the holder of a priority would seek two classes of supplier.

Up in the air was whether, if wood and pulp went from Commerce to Agriculture, that particular section of NPA devoted to forest products, would go along with it. That seemed questionable, because the government personnel involved, including specifically LeRoy Neubrech, NPA head of the pulp and paper division, belonged to Commerce.

As predicted by PULP & PAPER last month, Mr. Neubrech has moved into a present top spot in the war production picture. Mr. Neubrech and his division in Commerce has been moved right into NPA—which is more powerful than the old WPB of World War II—and his new title is "Administrator of Industrial Operations of the Pulp and Paper Industry, National Production Authority." As this issue was going to press, Mr. Neubrech modestly professed not to have received official notification of his new title and duties and would say only that "if such were the case" he would be pleased, due to his long and pleasant relationship with the industry.

The North American Continent could be said to be standing pat on international controls, because CPPA's president R. M. Fowler went on record at N. Y.-Canadian Superintendents meeting in Ottawa in September as against Canadian controls for now, and there were even more rea-

sons why Canada would not like broader ones. At press time, through several key importers and mill representatives, PULP & PAPER verified that Sweden was not likely to care for such a turn of events. Under international allocation, Scandinavian pulp was more likely to be assigned to markets other than the U. S., possibly on a price not as good as now.

Whatever happens to either wages and prices, the new ESA—Economic Stability Agency—will administer wage and price controls if and when Truman says they are here. They should observe also that none of the exceptions listed in "Executive Order 10160" apply to pulp and paper makers. This order states that mills must "preserve all records on prices received or asked; and preserve all records on labor, material, acquisition, and other costs in connection therewith." Neither ESA nor the Executive order makes clear the length of time such records must be kept, but E. G. Amos, assistant executive

secretary of APPA, suggests it sensible to assume they will be used as a basis for wage-price relationships.

And while Gen. Harrison of NPA was delegating to the Defense Department and Atomic Energy Commission formal authority to assign priority to procurement orders, a new defense office—the eighth set of initials in 1950 mobilization—was set. This is Defense Transportation Administration which is headed (within the Interstate Commerce Commission) by James K. Knudson. The counterpart of ODT of World War II, it will watch priorities and allocations for railroads, trucking, storage and port facilities.

In its "hoarding ban"—historically known as NPA Reg. No. 1—Gen. Harrison's NPA showed quick teeth to several items vital in the industry. As all readers now know, they included wood pulp, chlorine, soda ash, copper wire and products, some items of iron and steel, scrap iron and steel, and cotton pulps.



IN INDUSTRY NEWS OF PAST MONTH (left to right):

JOHN C. SIMONICH, appointed to become Manager of Kimberly-Clark's Niagara Falls, N. Y., mills in December when FRED VAN LIEW retires, according to HENRY G. BOON, Vice Pres. for Operations. Mr. Simonich, with K-C since 1927, was one time Supt. of Niagara Falls but in recent years has been Director of Industrial Relations for the corporation, in which post he is to be succeeded by Ralph Kepl.

MARY E. REINMUTH, Advertising Mgr., Fraser Industries, Ltd., New York, who recently sojourned in Bermuda, was guest of the Governor, and came back with news of Bermuda's serious forest blight and the fact that California foresters are prominent in the correction work. She is Editor of Fraser's "The Voyageur."

SIDNEY COLLIER, for years Assistant Supt., Puget Sound Pulp & Timber Co., Bellingham, Wash., has joined the new Pulp Division of H. B. MacMillan Export Co., Ltd., as Acting Supt. of its new kraft pulp mill at Nanaimo, B. C., as L. G. HARRIS has been promoted to Asst. Mgr. under Mgr. CLIFFORD CRISPIN.

K. O. ELDERKIN, Manager of Crossett Paper Mill Division of Crossett Industries, Crossett, Ark., who was member of an American task force team which studied needs of the pulp and paper industry of Austria for the ECA.

POWELL RIVER CO. EXPANSION

Powell River Co., big British Columbia newsprint producer, has embarked on an extension of its postwar expansion program designed to effect important improvements throughout the mill and push production up 40,000 tons a year to a total of approximately 340,000 tons. This compares with a total production in 1948 of 247,235 tons. It is hoped to attain the new objective in 1952, so that over the four year period the company plans to increase its newsprint output by nearly 100,000 tons. Considerable additional increase will be brought about by speeding up four older machines and making adjustment to No. 7 and new No. 8, the latter having started up in late 1948.

New Dryer for St. Helens

A new Yankee dryer of latest design has been ordered from Beloit Iron Works by St. Helens Pulp & Paper Co., St. Helens, Ore., for installation on No. 2 paper machine, according to Max R. Oberdorfer, executive vice president. This Yankee, a modern thin-shelled unit operating at 125 lbs. pressure, will replace an older 75-lb. Yankee of the same exterior dimensions—12 ft. diameter by 16.5 ft. face.

Mr. Oberdorfer expects the new dryer to increase No. 2 machine's production rate of machine glazed papers by 10 to 15%. A smaller increase is anticipated from the machine when running on other light weight.

Keep on Aiming for Goal

Although mobilization and defense regulations may delay their hopes, a group of midwest publishers have now formed a publisher-owned cooperative, named Choctaw Pulp & Paper Co., laying plans for the possible \$40,000,000 newsprint plant on an old plantation at Naheola, Ala., on the Tombigbee River, which we previously reported. They envisage 100,000 tons each of newsprint and kraft pulp annually.

J. A. Udey Co., Detroit, has been engaged to build this fall. Paul D. Hammacher of Butler, Ala., is president, and says \$1,000,000 has been raised.

MOBILIZATION IMPACT ON PULP

Ritchie Warns of Selective Controls Dangers

Addressing a Groundwood Paper Group meeting in New York City, Oct. 6, James L. Ritchie (shown in picture), executive director of the U. S. Pulp Producers Association, predicted that "Because of the increased importance of North America as a source of supply for wood pulp, the mobilization problems of the pulp and paper industry should be far less desperate than they were at the peak of the last war, and far less drastic measures will be required for their solution."

However, Mr. Ritchie tempered this with two specific warnings:

"Overall pulp supply, over the longer term, may be adversely affected by shortages of manpower, wood, equipment, transportation, materials and supplies. The intensity of the mobilization program and the resourcefulness of the industry in solving its mobilization problems will determine the impact of these factors on pulp supply.

"Market pulp supply, over the longer term, could be seriously jeopardized, even short of an all-out war, by any attempt to apply unrealistic stabilization controls to wood pulp on a selective basis. Unrealistic price controls could result in a serious diversion of foreign pulp supplies from this market to other markets; unrealistic wage controls, selectively applied to market pulp, could result in a serious diversion of manpower from the domestic pulp industry to other industries not subject to wage controls."

However, Mr. Ritchie opined controls of only selected industries, as provided by recent laws, will be found impractical. Other principal conclusions of his report were that:

"Demand for pulp probably will continue near recent high levels until pulp and paper pipelines have been filled—perhaps sometime in 1951.

"Impact of mobilization on overall supply will be gradual rather than abrupt. Fourth quarter supply should continue near high levels.

"Supply of market pulp in 4th quarter should exceed 1948 rate, but may be 6% below 1950 rate. Future deliveries must bear a closer relationship to current production than in recent past."

Interesting portions of his address are excerpted as follows:

"The time may come sometime during 1951, as it did under similar circumstances in 1942, when demand for paper and board may fall. It was in such a period of readjustment during the last war that pulp and paper became officially regarded for a time as 'unessential.' It took the industry a long time to live down that unwarranted reputation. It would be unfortunate if it happened again.

"If the mobilization program is still in full force when the paper cycle is completed, a program of civilian stockpiling of wood pulp, pending essential readjustments in paper markets, would appear to be the soundest course of action for consumers. Such a program would help to insure continuity of pulp supply for the duration of the mobilization period.

"At the proper time, NPA Regulation 1, which limits pulp inventories to a "practical working minimum," should be revised to exclude wood pulp in order to

insure that essential pulp production will not be lost during a temporary period of market readjustment.

"Domestic capacity for the production of wood pulp currently totals over 16,000,000 tons a year. Domestic production during 1950 has been at an annual rate that exceeds the record production of 1948 by 10% and average prewar production (1937-9) by 119%.

"Canada's pulp capacity currently totals over 9,000,000 tons. Canadian production during 1950 has been at an annual rate slightly exceeding the record production of 1948 and exceeding average prewar production by an estimated 76%.

"On a grade basis as well as on an overall basis, North American capacity currently exceeds even the peak North American consumption levels of 1950. If there were reasonable assurance that the North American wood pulp industries could operate at capacity, therefore, the problem of pulp and paper supply would be greatly simplified. Unfortunately, however, because of the possible impact of the mobilization program on pulp supply, there is no such assurance.

"Manpower shortages could have a direct adverse effect upon pulp supply. At the outset of the last war, there was a large reservoir of unemployed. . . . This time, unemployed are relatively few in number. Although the current defense production program is smaller than the World War II program, the direct impact of selective service and labor pirating could well be felt much earlier. An exodus of woods workers would quickly aggravate a wood situation which is already becoming a matter of serious concern. Over-all inventories of pulpwood on Aug. 1, 1950 were 29% below the level of inventories on the corresponding date a year ago. . . . The problem will become still more difficult as it becomes necessary to compete with all of the other forest products industries. . . . Shortages of labor-saving equipment to harvest the wood and shortages of mobile equipment to transport it are other incidents of mobilization that could conceivably affect pulp supply.

"A third factor that might adversely affect wood pulp is possibility of shortages



of other materials. . . . Extended strikes in the chemical industries for a time reduced the production of soda ash by an estimated 65%, caustic soda by an estimated 35% and chlorine by an estimated 30%. Allocation programs could further reduce the supply.

"In the three years preceding World War II, the U. S. furnished 28% of our total new supply of market wood pulp, Canada 16%, and Europe 56%. During the four postwar years it was: from the U. S., 46%; from Canada, 34%; from Europe, only 20%.

"In the event of a third World War, therefore, we stand to lose initially, (loss of European supply), one-fifth of our total market pulp supply, instead of the 56% that was lost at the start of World War II (approximately 750,000 tons currently as compared with 1,600,000 tons prewar). On a grade basis, we have had a postwar dependence upon Europe for 51% of our requirements of market unbleached sulfate, 32% of our requirements of unbleached sulfite, 25% of our market bleached sulfate, and 6% of our market bleached sulfite.

"The supply of market pulp prospectively available for U. S. during the fourth quarter should total about 835,000 tons, derived approximately as follows: from the U. S., 380,000 tons, or 46%; from Canada, 300,000 tons, or 36%; from Europe, 155,000 tons, or 18%. An over-all market pulp supply of this magnitude would be at an annual rate of 3,340,000 tons. This is more market pulp than has ever been available to domestic consumers in any single calendar year. It would be enough to permit sustained consumption of market pulp at a rate approximately 3% greater than the prevailing rate of consumption in the record year 1948. It would not be enough, however, to permit continued consumption by consuming mills at the rate prevailing in the first half of 1950. . . . If there is no reduction in the demand for paper and board before the end of next January, then the prospect of a seasonal decline in the deliveries of Scandinavian pulp during the three subsequent months could make that period a difficult one for market pulp consumer.

"If selective price controls are applied to wood pulp, the Defense Production Act provides that selective wage controls must also be applied. If market pulp production is subjected to wage control, the probabilities are, as a practical matter, that wage controls will be applied to all pulp and paper production. Wage controls applied selectively to the pulp and paper industry would make it difficult for this industry to compete with uncontrolled industries for an effective labor force. President Truman, in his mobilization speech Sept. 9, stated: 'We cannot yet be sure that the new law permits effective use of selective controls. As a result, we might have to resort to general controls before they are really necessary.'

A PAPERBOARD LEADER

Original Engineering at Alton Box Board "FUMIDIDDLE" Just One of Unique Features

In the paperboard world, the Alton Box Board Co., which occupies an extensive plant site on the east shore of the Mississippi at Alton, Ill., just above the confluence of that river and the Missouri, is widely known for its independent outlook and action. There has been considerable original thinking evidenced at Alton in many ways—in its engineering, in its management policies and in its labor relations.

With four sleek cylinder machines, one on wheat straw pulp and the rest principally using pulp made from salvaged paper, the Alton mill has a capacity for some 700 tons per day of board. It has its own fleet of 49 tractors and over 100 semi-trailers to help deliver its product to converters and customers within a 300-mile radius and carry raw materials on the return trip. It has its own trucks to bring in coal and oil.

Some of the features to be discussed in this article are:

Six Outstanding Mill Features

(1) The world's largest and biggest-producing cylinder machine, 216 inches wide with seven giant vats and a wet-end largely engineered by mill executives;

(2) The "Fumididdle," an originally designed pulp-pumping and preparation system ahead of the machine;

(3) A new system for handling and cooking of straw which is responsible for a superior strawboard;

(4) Improvements and original design in power plant;

(5) A new coating installation that gives versatility and wider range to mill products, and

(6) A research and development laboratory which is one of the best equipped and manned in the board field.

A PULP & PAPER editor reached this mill by the conventional route—an overnight train ride to St. Louis from Chicago, then backtracking and crossing to the east side of the river, 26 miles above St. Louis. Between Alton and St. Louis, the Mississippi also flows east for a stretch as it joins with the Missouri.

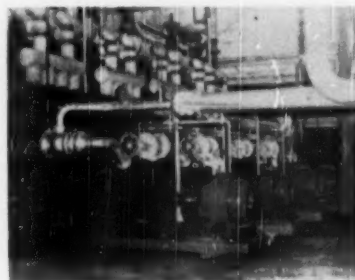
The original reasons for building a mill here was proximity of both the coal fields, for power source, and the wheat fields, for raw material, plus the Mississippi and nearness of markets. To these now have been added the nearness of new natural gas fields and also the convenience of salvaged paper supply, now greatly exceeding straw as a raw material. Domestic and foreign wood pulp is purchased and mixed for certain grades.

This Alton mill has had continuous round-the-clock production since 1932 except for two annual holiday-shutdowns required in labor agreements. In the 40 years since the mill started, there has never been a strike and it now employs about 1100, organized in an independent union. Average wage of around \$1.50 is near the top in both the community and the industry. The company has picked supervisors and higher executives from within the mill and recently negotiated

a jointly-contributed pension and retirement plan.

As for the community, there is a local saying that Alton has never had a depression. Whether or not this is strictly true, there is a healthy interdependence of industries. The board mill, for example, sells its product to nearby Owens-Illinois Glass Co.; also wadboard to the Olin Industries. It buys steel from Laclede Steel Co., and lime from Mississippi Lime Co.

OUR COVER PICTURE . . . ALTON'S "FUMIDIDDLE" . . .



Here is a replica of the cover photograph for this issue of PULP & PAPER, an exclusive picture of one of the most unusual and amazing mechanical layouts ever seen in a pulp and paper mill.

Obtained by one of our traveling editors on a visit to Alton Box Board Co., East Alton, Ill., this picture shows a most fantastically intricate arrangement of refining and pulp pumping equipment serving—but across an aisle to the side—of the world's largest and biggest producing cylinder machines.

This is just one of several unusual engineering features of this unusual paperboard company, which are all described in this exclusive first-hand article.

In a most efficient, versatile layout for refinement, pulp is pumped 2 3/4ths of a mile in this small area at up to 8% to 10% consistencies.

This view shows the 6 by 12 inch Byron Jackson pulp pumps—six of them tested to deliver 750 gpm. at 200 ft. t.d.h., driven by 100 hp. Westinghouse 3-phase motors. A pulp-pumping capacity was attained here which was out of range of published data—unique for this industry. See story for data.



MARVIN W. SWAIM,
First Vice Pres. and Gen.
Mgr., Alton Box Board
Co., who brought new
concept of paperboard
selling from years with
world's biggest shoe-
makers in St. Louis.

Men Behind the Machines

Personalities are so important in the original thinking and planning of this mill that before going further, a few should at least be mentioned for their responsibilities for the postwar developments.

Over-all company operation is the responsibility of Marvin W. Swaim, first vice president and general manager. Mr. Swaim is a native of Tennessee whose attributes are a warm friendliness and willingness to encourage and give full credit to his staff; but along with this is an incisive, trained mind that cuts through to the core and the essentials of any problem.

Backed by broad experience in the new field of mass-production packaging, gained from pioneering the extensive boxing operations of the world's biggest shoe producer—International Shoe Co. of St. Louis, Mr. Swaim brought a new concept of paperboard selling to Alton when he joined the boxboard company as sales manager in 1927. From the beginning Mr. Swaim set about developing the efficient sales service features to which much of the company's present prosperity is credited; and in 1944 he became head of all operations.

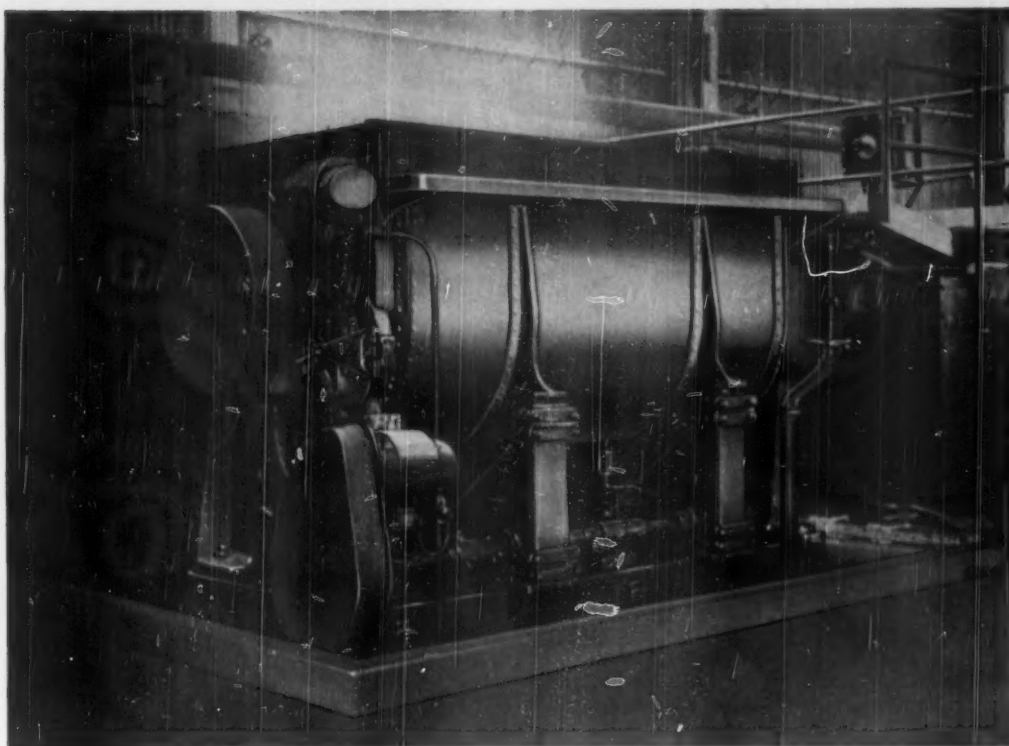
Two well-known papermaking brothers are here—Roy H. Breyfogle, vice president in charge of manufacturing; and Howard M. Breyfogle, mill superintendent, both born in Delaware, Ohio, and both formerly at the Eddy Paper Corp., in White Pigeon, Mich., and Standard Paper Co. (now part of Sutherland) at Kalamazoo, Mich. Roy came to Alton in 1930 and Howard two years later. Their ideas have been perpetuated in the new installations and Roy, for example, is responsible for design for a primary suction drum on the new machine.

R. Frank Hollis, whose tobacco-pipes include a Missouri meerschau, is the general superintendent of the mill, and, in actual practice, he is the engineer and designer of many of its important installations. Very few mills have had so

AT ALTON BOX BOARD

9 BIRD SCREENS

— Six handling some ten tons per hour of filler stock; three screening about three tons per hour of liner stock —



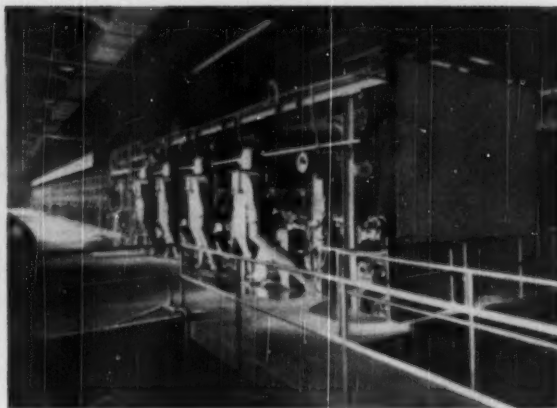
The stock flows from the Bird Screens to thickeners and then to machine chests. Correct consistency is employed for highest screening efficiency and again for the paper machine — a unique and highly effective set-up.

How about *your* screening set-up? Can it meet today's production demands? New Bird Screens may prove to be one of the smartest moves you can make, right now.

BIRD MACHINE COMPANY
SOUTH WALPOLE • MASSACHUSETTS



AIR VIEW OF ONE OF BIGGEST PAPERBOARD MANUFACTURERS—Alton Box Board Co., on the Mississippi. Purchased wood pulp is under roof in foreground. In background and elsewhere outside, the dark stacks are straw; the light stacks are waste paper. Boiler house and high stack are in background; the new mill for No. 4 machine—world's largest—is at upper right, with shipping shed this side. Fleet of trucks and trailers in center.



HERE'S ALTON BOX BOARD'S NO. 3 Machine, a Beloit-cylinder machine which has attracted wide interest of the paperboard industry because a superior strawboard is being made on it. The machine has a 169-in. face on cylinder mold. It is world's biggest strawboard producer. A change in chemicals in cooking; improved quality of straw; a Gruendler shredder making better washing; Sprout-Waldron refiner; National Aluminate slime treatment—all these may figure as reasons for the better strawboard.

much original engineering done for them as Mr. Hollis has done at Alton, his work ranging from design of a new gas or oil stoker-and-boiler installation which has been on the line 97% since installed Nov. 1, 1944, to the remarkable pulp distribution system ahead of the new No. 4 Machine, for which pulp-pumps have attained capacities which were out of range of published data. We have the impression that few men have ever had more genuine pleasure out of engineering than Frank Hollis, and he has the wit and facility of expression to put his ideas clearly before management. No fancy degrees are behind his name, his education being at Louisville University and Purdue where he obtained a B.S. in mechanical engineering. With Alton's Lafayette Mill 1928 to 1932, after serving in a machine works, he moved to Alton in '32 as a mechanical engineer.

Norval Wilson, chief chemist at Alton, developed the Wilson stain for fiber identification which for some users gives clearer

color differentiation than the widely used "C" stain, and early this year Mr. Wilson brought to New York's "Paper Week" a tiny model of a corrugator which he showed in a technical session at the Commodore. It has metal plate replicas of corrugator-flutes and electrical heating-unit. He has made samples on it with higher flat-crush tests' validity than any produced commercially, and its use may lead to improved corrugated board in several respects.

W. L. Cassidy supervises quality control. B. T. Storm is chief draughtsman; J. F. Kochersperger, master mechanic; J. K. Cushman, mechanical master mechanic; M. D. Jones, chief operating engineer. W. C. Fairbanks is secretary of the company and handles industrial and personnel policies.

The "Fumididdle" Refining-Pumping Setup

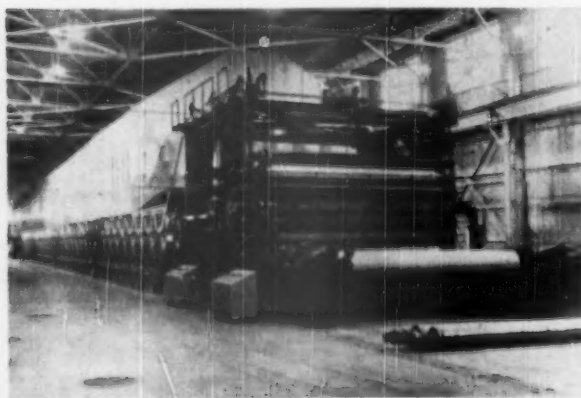
"The Fumididdle" is the name which

became attached to the special refining, piping and pumping arrangement which serves the new No. 4 Machine. What management was trying to do here was something that had never been done before in the industry. The pumping problem, especially, was one which the company could look nowhere else for help, so Mr. Hollis designed the necessary equipment.

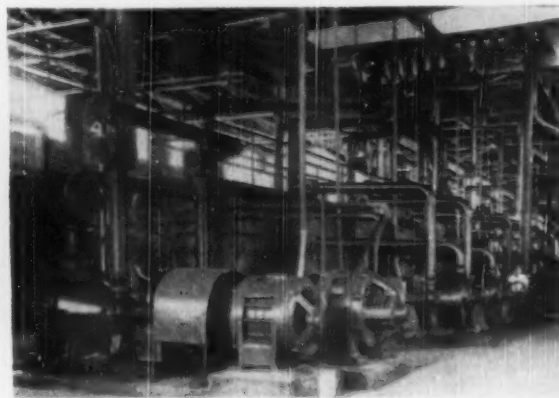
The layout was planned in order to heat stock for the machine with steam, without adding condensed water to the stock, and not to lose any condensate which goes back to the power plant. The piping and refiners are all across the wide aisle from the wet end of No. 4, and to the right of the machine, looking toward the dry end. Stock goes from Herman Manufacturing Co. Claffin refiners to the cylinder molds, one Claffin to each mold, thus affording the machine tender facility to vary treatments.

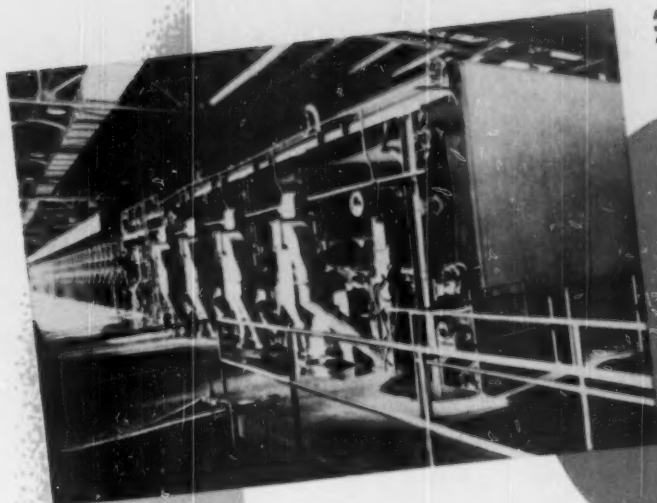
An important reason for this arrange-

HERE'S THE WORLD-FAMOUS ALTONIAN—the world's biggest and greatest producer of paperboard. This is No. 4, a Beloit 216-in. machine, averaging well over 300 tons per day. Here are the two calender stacks and four sections of dryers. It has 76 castiron dryers with SKF antifriction bearings and there is space to add 20 more.



HERE ARE SOME OF THE HERMANN CLAFFIN REFINERS and the SHARTLE JORDANS which are the refining units linked in the "Fumididdle"—the versatile and efficient pulp pumping and refining system with 2/3th of a mile of piping, serving No. 4 machine. The flow of stock in this unique system is described in this article.





Alton's No. 3 machine, world's record crownboard producer. Photo courtesy of Alton Box Board Company, Alton, Illinois.

Nalco 3-WAY SERVICE

at Alton Box Board Company

HERE are the three water treatment services performed by Nalco at Alton Box Board Company, Alton, Illinois. In addition, experimental work on process waters using Nalco anti-foam chemicals is now being done at Alton:

① **SLIME CONTROL** chemicals, fitted to Alton Box Board requirements, help maintain high quality . . . prevent slime spots and breaks due to slime.

② **CLARIFICATION** of mill water with Nalco #640 Sodium Aluminate . . . A versatile chemical also used widely for size control and maximum alum availability.

③ **BOILER WATER TREATMENT** with specially-processed organic chemicals for use in high-capacity, high-pressure boilers.

Use of Nalco Chemicals and Services at Alton Box Board Company shows clearly the wide extent to which good water treatment, properly applied, can be utilized to make over-all mill operation cleaner, more efficient and more economical.

The Nalco System can be applied selectively, or for complete water treatment protection in your mill. Write today for full details on your specific water treatment problems.

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THE

Nalco

SYSTEM • Serving the Paper Industry through Practical Applied Science



ROY H. BREYFOGLE (left), Vice Pres. in Charge of Manufacturing, one of the famed Breyfogle brothers of paper industry (one is with him at Alton), and **R. FRANK HOLLIS** (right), Gen. Supt., the original designer of the "Fumididdle" and considerable other unique equipment in the Alton Box Board Co. operations.

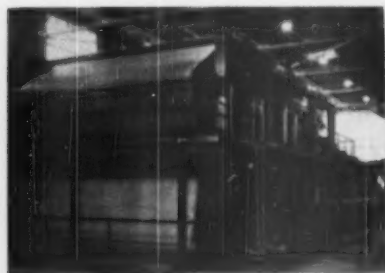
ment of piping and pumping and diversity in treatment was to homogenize the furnish. The special set-up will run about 8% consistency most of the time and it is possible to get it up to 10%. Staging pumps had to be used because of the piping which was 2/5 of a mile long, all confined in that area off to the side of the machine wet-end.

Six specially built, stainless-fitted 6x12 in. Byron Jackson pulp pumps are used. They operate at 1160 r.p.m.; are tested to deliver 750 g.p.m. at 200 ft. t.d.h. and are driven by Westinghouse 100 h.p. motors. A great deal of development work had to be done as the range of capacity and consistency desired presented the most serious problem. Special metals are used pretty much throughout the system.

The flow of stock is as follows: From chest to Shartle Jordans, then to a mixer where it is changed to 1/2% consistency. Then it goes to riffles, then to a battery of Bird Machine Co. Model 3A screens, six of which are used on filler and two on liner stock. From screens, stock goes to an Impco vacuum decker and then to machine chest. Next comes the Claflin refining engines, each serving a cylinder mold. Fifteen tons of stock can be given simultaneous varied treatment. If the stock is being overdone on one side it can be backed off; if under-done on another it can come in.

The "Fumididdle" is some 25 feet away from the machine. Instead of having the

VIEWS AT ALTON BOX BOARD CO.
WET END OF NO. 4 BELOIT, world's largest cylinder machine, showing cylinder molds and 220-inch top felt. "Fumididdle" is across aisle to right, opposite these cylinder molds which it serves with refined pulp.



Bird screens hooked up directly to the machine, as in conventional installations, the stock flows by gravity from the screens to the thickeners and thence to the big machine chests which hold as much as nine hours' supply of filler stock for the paper machine and as much as six hours' supply of liner stock. This makes a flexible and efficient system because the stocks can be screened at the correct consistency for highest screening efficiency without regard for the consistency with which it goes onto the paper machine. The paper machine can likewise be operated with stock at exactly the right consistency regardless of screening requirements. This is a unique set-up and it works exceedingly well.

It should be stated that ahead of this special refining system are two new Shartle-Dilts Hydrapulpers, one 20 feet in diameter for filler stock, and one 16 ft. for liner stock. Both have the same wheels and gearing.

No. 4 Machine—The Altonian

The big red No. 4 machine, known as "The Altonian," was made by Beloit Iron Works from stem to stern, as were the three other Alton machines, along ideas specified by Alton engineers. The huge 216-inch machine will trim 200" on liner. Each of the seven cylinder molds weighs 22,000 lbs., must be lifted by a 15-ton duplex crane. Each vat circuit circulates 13,500 gallons of water continuously and is equipped with heavy shaft. The Breyfogle primary suction drum has been mentioned, and other major features of the wet-end are based upon Mr. Breyfogle's 40 years' experience. Each mold is individually driven by electric motor, with motors synchronized. Molds are five feet in diameter and vats are all metal construction.

Molds are of suction type to facilitate drainage from stock and this is reputedly the first mill with seven vacuum pumps all on one common header line, on Machine room level. Nash engineering supplied the pumps through Smith & Vicario and all Nash pumps have motors identically alike so that a spare can start up when needed. Wet-end of the machine is equipped with Westinghouse helper drives.

Three suction rolls immediately follow

GRUENDLER CRUSHER & PULVERIZER CO. in nearby St. Louis supplied this Type 3XD straw shredder which handles entire discharge from rotary digesters and discharges directly into breaker beater serving No. 3 strawboard machine.



NORVAL WILSON (left), Chief Chemist, who developed the Wilson stain for fiber identification, and **HOWARD M. BREYFOGLE** (right), Mill Supt., of Alton Box Board Co. Like his brother, Roy, also at Alton, Howard worked for years in Michigan mills.



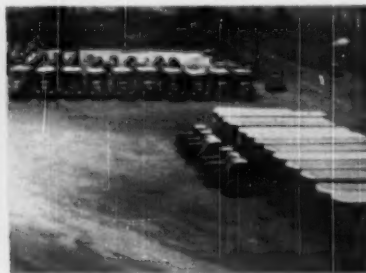
vats and one is in the press section. The web passes into a two-unit press section. First merely applies pressure and the second consists of a press roll at top and suction roll at bottom.

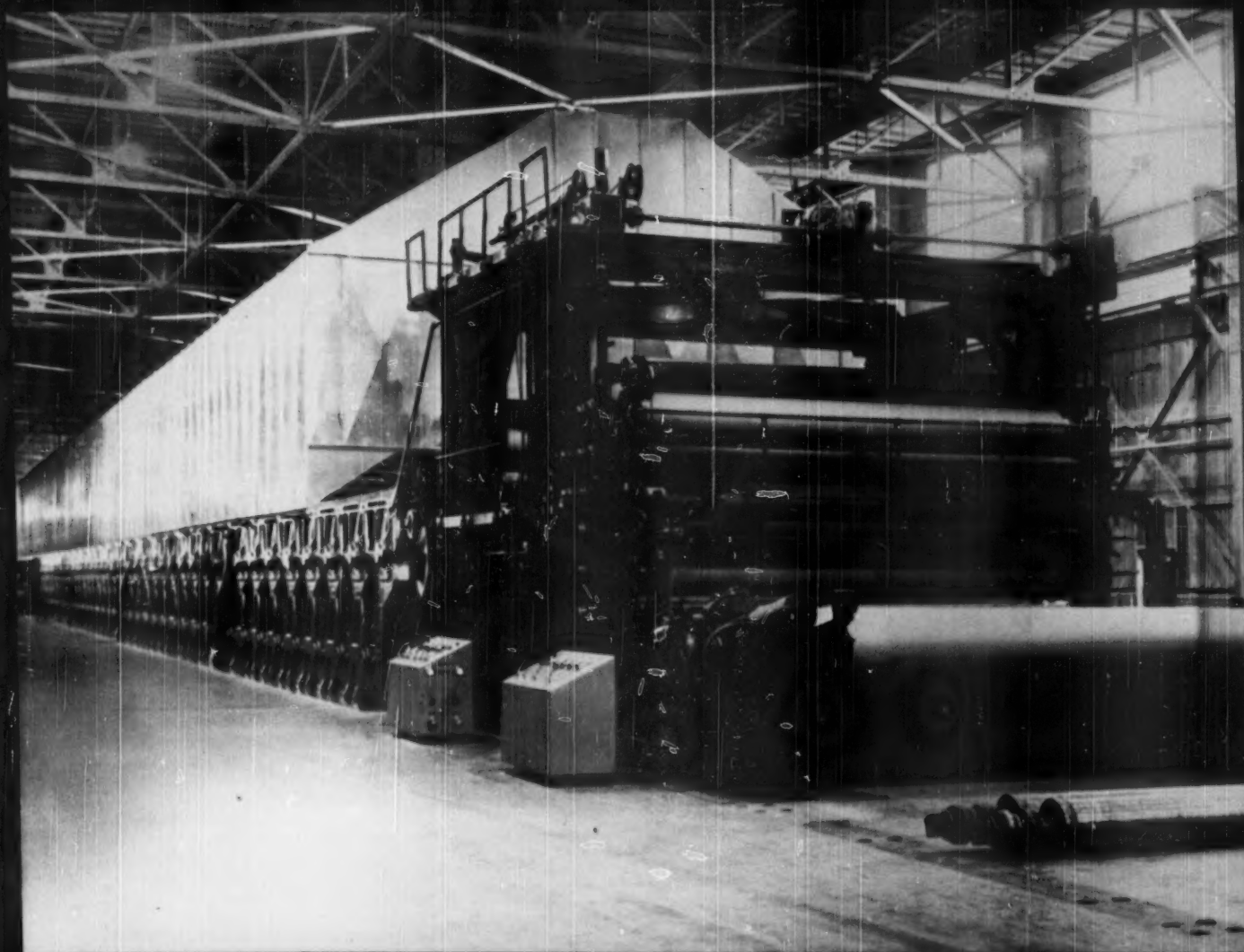
The 4-part dryer section consists of 76 cast-iron paper dryers, all dynamically balanced. Throughout the entire machine SKF Industries' anti-friction bearings are used. Each paper dryer weighs 10 tons and is 5 feet in diameter. There are nine 5-foot felt dryers. Dryers are arranged in two decks and more can be added when power is stepped up with a new boiler installation now projected.

Space is provided to make this a 9-cylinder machine; and there is space for 20 more dryers. In the two calender stacks, the bottom rolls weigh 25 tons each. As stated, rolls here are mounted in SKF bearings which are continuously oiled. Two dryer rolls are between the two calender stacks, thus providing a means of removing moisture added by water-boxes on the first stack. The reel is constant-speed type with 36-inch drum. Two new features are noted here, the spool rides on an inclined rail, and double-acting air-cylinders, front and back, regulate spool pressure on the drum, thus controlling density of the roll. Primary or starting arms are also provided with air-cylinders. The rewinder is a Beloit heavy-duty type.

All pneumatic loading throughout the machine is provided by Beloit. The extensive use of air actuated devices is in

JUST A PORTION OF ALTON BOX BOARD'S 49 truck-trailers and over 100 semi-trailers in its own transportation fleet serving customers in a 300-mile radius, returning with raw materials. It has 37 Whites, 10 Reos, and two others.

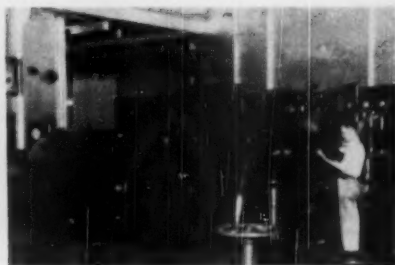






VIEWS AT ALTON BOX BOARD CO.

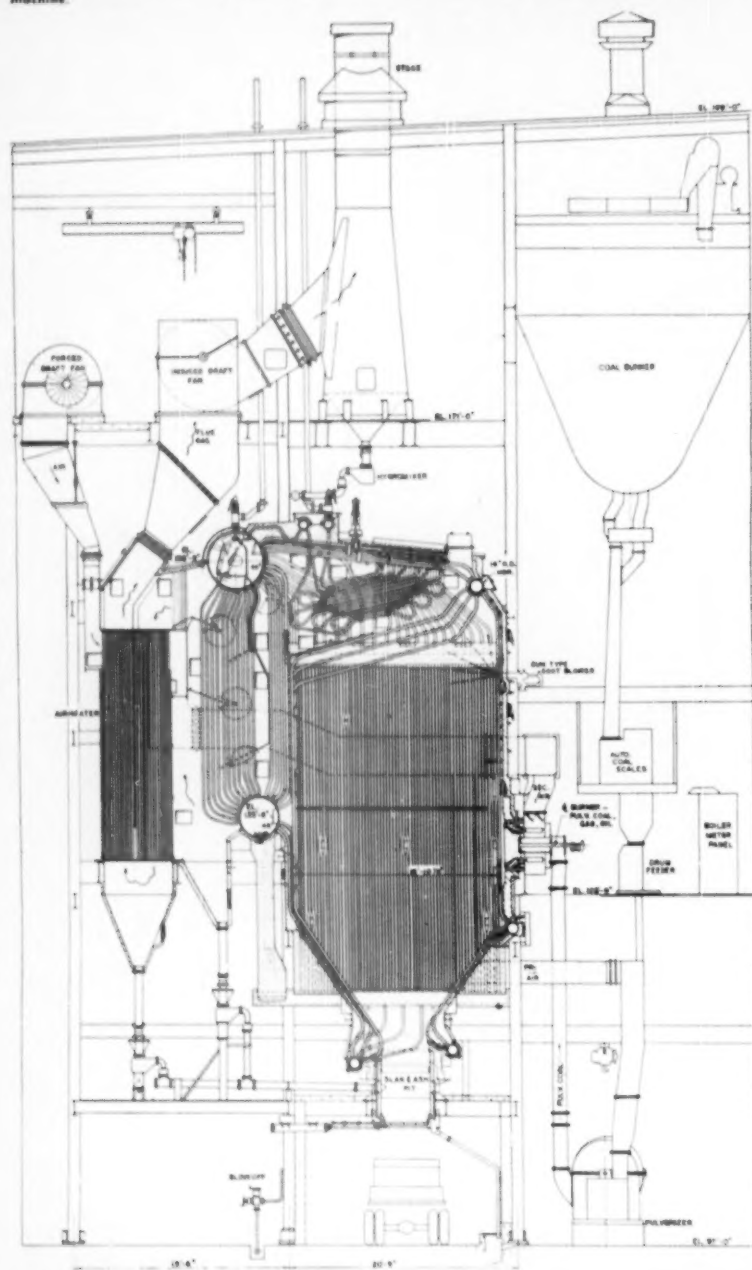
ONE OF FOUR SHARTLE-DILTS HYDRAPULPERS which prepare over 300 tons of waste paper daily. Two of the Hydrapulpers, one 20 ft. diameter for filler, and one 16 ft. for liner stock, serve the big No. 4 machine.



ONE OF FOUR TURBO-GENERATORS which supply 10,500 kilowatts of electricity to drive Alton's machines. One is of 5,000 kw. capacity; one of 2,500 kw., and two are of 1,500 kw. capacity.



FULL, OPEN BASEMENT shown here is under the big No. 4 machine and it makes possible speedy handling of scrap and broke. At far end of this picture is the broke heater.



line with modern machine equipment. One new feature is passing of steam from lead lines through flexible pipes before joining couplings to dryers, thus easing vibration and facilitating dis-assembly of steam lines. About 9,000 gallon capacity oil system lubricates the machine.

Motors are Westinghouse and the main drive is a 1500 hp. Westinghouse variable-speed turbine with oil hydraulic governor. A direct line shaft drives in the basement and all gears are enclosed in oil.

One of the modern features is installation of the machine over-floor opening leading to a full basement. This helps to give ready access to the machine and also permits broke and trim to drop directly to the basement for return to the stock preparation system.

As it stands now, the machine is easily able to produce over 300 tons a day and with more power, more cylinders, and more dryers, this could be doubled on some grades of board. For regular filled kraft liner-boards from heavy to light weights, the machine is being run from 350 to 550 feet per minute. But it has been run as high as 600 feet for a short time.

No. 3 Machine—Improved Strawboard

No. 3 machine was installed at Alton in 1936, made by Beloit, and it is on this machine that the improved strawboard is being made with a greatly improved "flat-crush" test. The machine has a 169-inch face on the cylinder mold.

What is this new improved process? Part of it is due to using different chemicals in the cooking process eliminating waxes and chaff, but giving a tougher fiber. Another reason is improvement in the quality of straw as it comes to the mill. This has been achieved by cutting down the straw inventories at the mill from be-

R. FRANK HOLLIS, GEN. SUPT. OF ALTON BOX BOARD, designed the newest gas or oil stoker-and-boiler installation especially for his company. Here is drawing of Hollis-designed complete Riley Steam Generating Unit, consisting of Riley boiler, superheater, airheater, water-cooled furnace and steel clad setting. Fired by Riley pulverizers and burners.

Engineering Data:

Efficiency—85.0% at 100,000 lbs. steam per hour.
Working Pressure—475 lbs.
Steam Temperature—750° F.
Furnace Width—17'-4 1/2".
Furnace Volume—9000 cu. ft.
Heat Release—15,800 B.T.U.
Heating Surfaces: Boiler—9630 sq. ft.; Water Walls—6050 sq. ft.; Air Heater—17,000 sq. ft.

Hi Neighbor!



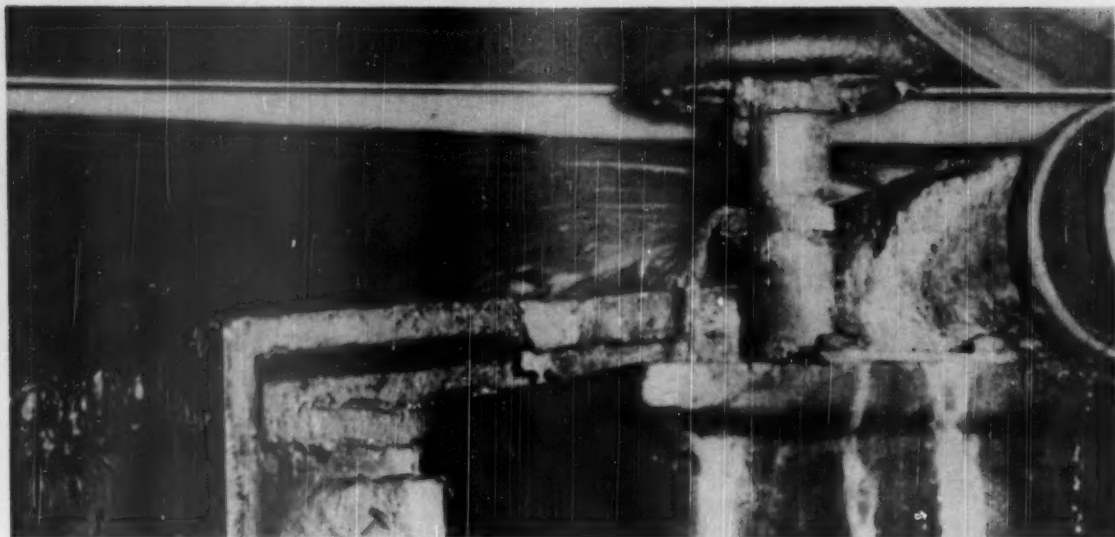
CONGRATULATIONS to the ALTON BOX BOARD CO.

on the initiative, ingenuity
and manufacturing "know
how" which has resulted
in your outstanding success.

We pay tribute
to your great contribution
to the progress of the
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As a manufacturer of Starches,
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proud that the fine quality
of these Anheuser-Busch
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PAPERMAKERS, NOTE!

A REMARKABLE PHOTOGRAPH TAKEN AT ALTON BOX BOARD CO. shows what happens to water at the No. 7 vat of the No. 4 Boleit Altonian, the world's largest paperboard machine, when it is running at 600 ft. per minute. Note water

flying off to left. Normally the machine runs 350 to 550 ft. per minute for regular filled kraft linerboards from heavy to light weights, but it has been run at 600 for short periods.

tween 30,000 and 40,000 tons to about 5,000 and instead, helping the farmers to bale and rick their straw and hold it in their stacks until needed by the mill. The mill contracts to buy the straw and insures it, but brings it in only as needed. There has been encouraging success, also, in use of chemical sprays to preserve the straw. Thus the quality of the straw is better preserved and this is an important item in making a better strawboard.

Rotary digesters which are 30 years or older are still used, and the cook is still the standard alkaline or caustic cook for straw, of 3 hours and 45 pounds pressure. The chemicals make the difference in the preparation.

These process stages follow after the cook: Shredding is done in a new type of Gruendler Straw Shredder made by Gruendler Crusher and Pulverizer Co. of St. Louis. The shredder does a job which makes possible better washing in Alton's hexagonal washers, which are the next step. It also results in requiring less

beater time as a result of the shredding machine technique. It not only speeds up the process but keeps straw from clogging pumps.

Then comes washing; then de-magnetizing (an electromagnet trap to catch bale wire); then beaters; slime treatment with National Aluminate slimicide (the new "cook" presented a new problem in slime); then refining with a Sprout-Waldron 36-2 single rotating disc refiner for final fiberizing of straw after the beaters; and finally screening ahead of the machine. Another Shartle Jordan was added. Also one of the two Hermann Claflin refiners on No. 3 was completely rebuilt. Result: An enormously improved "flat-crush."

No. 2 Machine—New Coating Process

Another new process to mention at Alton is the coating of board. This is in connection with the boxboard made on No. 2 machine. Right above the dry-end of this machine is installed a new Waldron Corporation Microjet coater. The

sheet is taken upstairs to the coaters after the dryers and back again through the floor to the No. 2 machine calenders.

The supply of pearl starch for this coating process comes from nearby St. Louis—from the Anheuser-Busch, Inc.'s expanding Corn Products Division, which this year is doubling its output of starch for paper mills. Just a day after visiting Alton, the PULP & PAPER editor viewed the new starch and dextrine plant additions at Anheuser-Busch, costing several million dollars and embodying the latest in equipment for this process and the "last word" in safety and good housekeeping. Dextrine production is being tripled.

Boilers—Power—Water

At Alton there are six boilers which develop 350,000 pounds of steam pressure per hour. The newest of these is the Holis-designed addition which was built by Riley and started late in 1944. The unusual feature of this boiler is that it is called "the first" with a big furnace com-

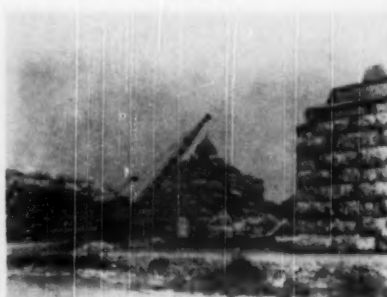
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VIEWS AT ALTON BOX BOARD CO.

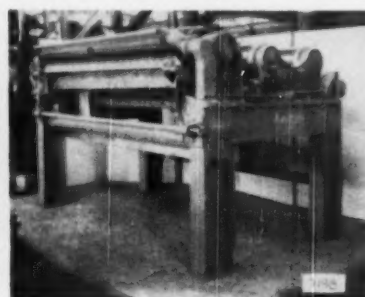
ALTON'S WAREHOUSE providing storage of products for many of its customers. Here is 60,000 square feet of space capable of storing over 3,000 tons of finished paperboard.



THEW SHOVEL CO. LORAIN self-propelled crane is shown at work stockpiling baled mixed waste paper in the Alton mill yard. Bales weigh 1,000-1,500 lbs. Lorains also handle straw.



WALDRON CORP. MICROJET COATER is located above dry end of Alton's No. 2 machine. Sheet is taken upstairs to coater and back through floor to calenders. Anheuser-Busch pearl starch is used.



One **CURLATOR** in one year

Saved 6,500 CORDS

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IN A NEWSPRINT MILL**



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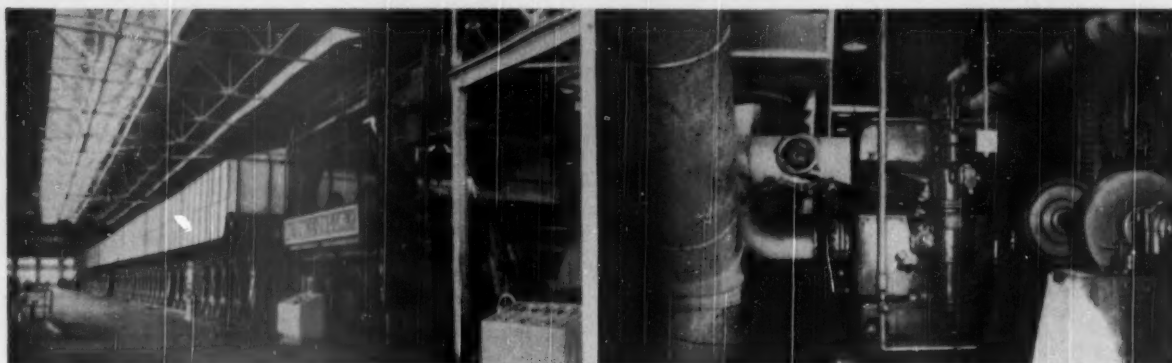
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STATE _____

CINCINNATI MEETING

ONE MACHINE MAKES 839 TONS IN DAY! NEW PULP DRYER--AND A NEW DECULATOR



HERE'S PULP & PAPER'S picture of the Beloit Buccaneer—named for President Kidd—at the Macon Kraft Co. mill, which delegates to the Engineering Conference heard had made an amazing total of 839 tons of board in one day! They were astounded when they heard the moisture removal ability of this machine at high speed, and pencils and pads came rushing out as delegates

took down notes. See accompanying story for full report on the machine's achievements. This view at left shows the Beloit dry end, calenders and reel. Picture at right shows the Westinghouse 2,000 hp single drive shaft turbine for the machine which is the biggest and highest pressure (825 lbs. steam) drive on record.

Every paper was made from a darned good "sheet"—that was the general verdict among the 400 delegates registered for the 5th Annual Engineering Conference of the Pulp and Paper Industry, sponsored by the Technical Association, at Cincinnati's Netherlands Plaza hotel, Oct. 2-5.

One of the first decisions of the conference, an implied tribute to the engineering leadership in the Southern pulp and paper industry, was to fix the 6th meeting for Oct. 16-18, 1951, in the General Oglethorpe hotel at Savannah, Ga.

The Cincinnati meeting brought out first formal announcements of some entirely new equipment or new processes, in several instances, and of new ideas for operations and maintenance. It was a closely knit meeting, an engineers' "family" affair. Accommodations were excellent and the main meeting halls, ornate, well air-conditioned and served by large foyers and walkways, were conducive to lively pre- and post-session discussion and idea-swapping.

Thirty industrial firms serving the industry from Ohio co-sponsored the sessions. In addition, the Ohio Technical Section members prepared the program and took care of details.

Death of Alvin Johnson

A sad prelude to the conference was the sudden death in New York on Sept. 30 of Alvin H. Johnson, head of the distinguished paper mill design engineering and consulting firm of Alvin H. Johnson & Co., Inc., New York, who was scheduled to be the presiding officer at the first group session on "Mill Design and Economic Aspects," just two days later. Mr. Johnson had been one of the leaders on

TAPPI's engineering committee in planning the conference. One of his most recent in a long series of mill projects was the "shoe-horn" engineering job his firm did in fitting the expansion of Calcasieu Paper Co. in and around the older plant layout of that company in Louisiana (described in PULP & PAPER, Aug. 1950, page 52).

New Pulp Dryer Described

One of the big sessions at Cincinnati was on drying and ventilating and drew an eager audience at its later round table. There was no lack of questions. M. L. Barker, Beckett Paper Co., chairmanned both the main session and round table.

The new product of J. O. Ross Engineering Corp., a pulp dryer, first described in PULP & PAPER last month (Oct., page 52), was the subject of a paper by J. F. Gschwind of that company. First pictures of this machine are shown on these pages. The first of these dryers, which dries completely with externally heated air, has been operating for five months at Chesapeake Corp., West Point, Va. A second one is already in St. Marys Kraft in Georgia and a third one is going into the new Riegel Paper Corp. subsidiary pulp mill which is being built at Acme, N. C.

Mr. Gschwind's discussion of The Ross

Pulp Drier was based on factual description of the above operation aided by slides of drawings and of operational still-pictures.

Air convection dries the pulp. The make-up air is supplied from a Ross Economizer. The exhaust air is returned to help heat the new make-up air. The pulp travels on conveyors the length of the machine, completing the "trip" from top to bottom in a continuous drying operation.

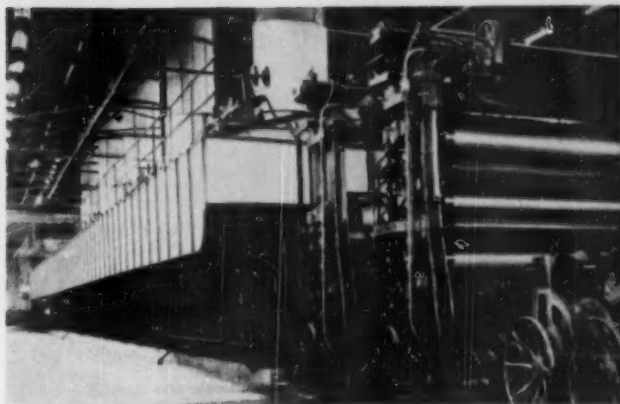
The problem of lint is minimized. What lint might drop off has no heating "plates" to which to cling and can be gathered at the bottom with a vacuum cleaner. Thus the lint is virtually eliminated. Strong cat-walks make all parts of the dryer easily accessible for maintenance and inspection.

Mr. Gschwind reported that there are other possibilities for the dryer not yet all fully explored. In operation, the heat can be zoned.

"Buccaneer" Makes 839 Tons in Day!

L. C. Crowder, of Macon Kraft Co., Georgia affiliate of The Mead Corp., discussed "Drying 800 Tons of Kraft Paper Daily on One Machine." To get the sheet of board dry at high speed demanded (1,400 f.m.p. for 42 lb. sheet) on the 216 in. kraft board machine at Macon ("The Buccaneer," named for Herbert A. Kidd, president and general manager of the company), Beloit Iron Works supplied it with every possible aid in elimination of water. It has a 130 ft. long Fourdrinier

ALL THE LATEST FEATURES



Superimposed press

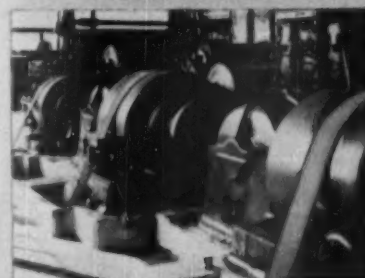


Down the decades the most modern and most successful board machines have been those bearing the Black-Clawson name-plate. The 146", five-cylinder machine here shown, carries on that enviable Black-Clawson tradition. Overflow type vats with large 60" molds. All vats HYDRONAMIC Inlet equipped. Open Type presses superimposed on vat section. Dryers 48" Black-Clawson seamless type. Drives on machine No. 0 and No. 1 B-C spiral bevel gear type. Drives on calenders No. 2 B-C spiral bevel gear type, with plug-ejecting mechanism. All drives air-flex clutch equipped for control from front of machine. Reel, B-C rugged, convenient Pope type. Machine almost totally remote controlled from conveniently located panel boards. Trim 130", Ultimate speed 600 feet plus, Ultimate capacity 150 tons plus, based on test liner. Preparatory system by Shartle-Dilts, employing Hydrapulper, cleaning equipment including Selectifier screens; also HYDRAFINERS, Shartle pumps, agi-flo agitation, etc.

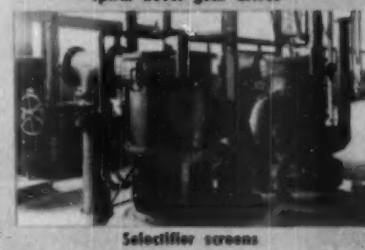
NOTE: No flat screens—not required where Selectifier screens are used.



HYDRONAMIC Inlets



Spiral bevel gear drives



Selectifier screens

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ENGINEERS AT THE CINCINNATI meeting heard a paper on a new Pulp Air Dryer—the first ever made by Ross Engineering Corp. Here are first photographs obtained by PULP & PAPER of this new Ross development. Left—The entrance side of a recently constructed Ross Dryer together with press section. Right—A side view

of the Dryer showing clearly the four fan towers housing heating coils. First door at right in this view permits entrance to vestibules for threading. First of these dryers were for Chesapeake Corp., West Point, Va. (125 tons—120 in. sheet—50 lbs. steam pressure) and for St. Mary's Kraft Corp., St. Mary's, Ga. (200 tons, 136 in. sheet—125 lbs. steam pressure).

wire. Two dual presses are preceded by a lumpbreaker or presser roll. A 42-inch Stonite roll is at the center of each dual press. J. O. Ross Engineering outdid itself at Macon with the longest and largest hood to date, providing nearly 2,000,000 c.f.m. of air.

Mr. Crowder drew a sharp bead on the improvements of the future when he summed his report with "We all must work harder to get out more water at the wet end, ahead of the dryer, and therefore reduce the cost of drying. Because the preponderance of capital investment is in the dryer section."

During a recent 24-hour period the Macon machine produced 838.99 tons of kraft. Mr. Crowder raised the eyebrows of other machine operators and had the engineers making some hasty calculations with pencils and slide-rules when he established that "only 1.24% of the total water to the wire was removed in the dryer section." The stock was at a consistency of .73%. The machine was running 1045 f.p.m. Moisture removal was computed as 97.4% of the total to the wire. It took 263,016 lbs. of steam per hour for drying and ventilating.

There are 102 dryer rolls, each 5 x 18 ft., in six sections, and 22 felt dryers on "The Buccaneer." PULP & PAPER's description (Apr. 1950 issue) reported a dryer temperature maintained at that time of 300 degrees F. and it is interesting to note the production was then reported as 600 tons per day "capacity."

The speed of the Macon machine requires a dryer pressure which is probably one of the highest in the industry. At the time of the recent tests, the machine was working with a dryer pressure of 115 lbs. per sq. inch, about 65 lbs. higher than most mills use.

When asked about increased water removal at the wet end, Mr. Crowder said it appears it will have to come through machine designing aimed at modifications in present equipment and with new equipment.

He said it is his own idea that there may be a small pressure building between the felt and the dryer which might flash-off in the areas between the rolls. He then posed the question, both at the main session and at the round-table, that perhaps a wider spacing of rolls might give more chance for release of this suppositional

pressure and thus reduce drying costs.

There were no real conclusions from the engineers during the round table discussion of this point. Summed up, most agreed that what goes on under the drying felt is an important topic that needs more study—and instruments that will give quick, dependable moisture content.

This part of the discussion tied-in very closely with a report which A. E. Montgomery, western manager for Ross, made on field tests of drying and ventilating. These were taken on a number of different machines, running various stocks.

Conditions of drying do vary from one end of the section to the other. The amount of moisture that can be seen by the eye, under varying humidity conditions, fools many of the machine men. All agreed that tension on the drying felts is an aid to drying and increases the drying obtained in all instances.

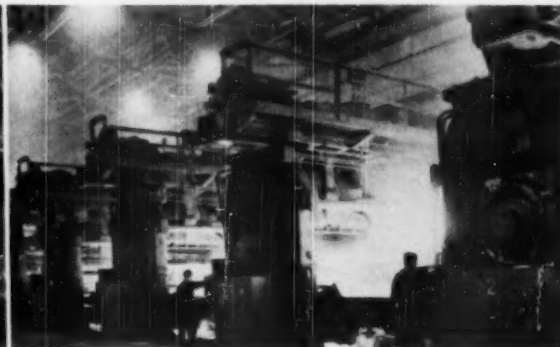
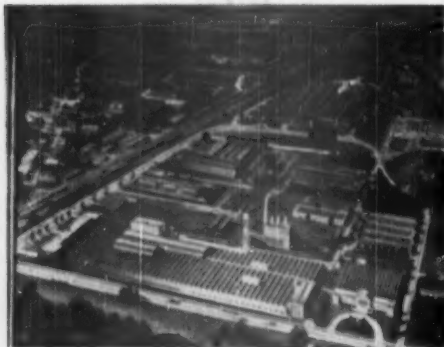
Paper Machine Drives Data

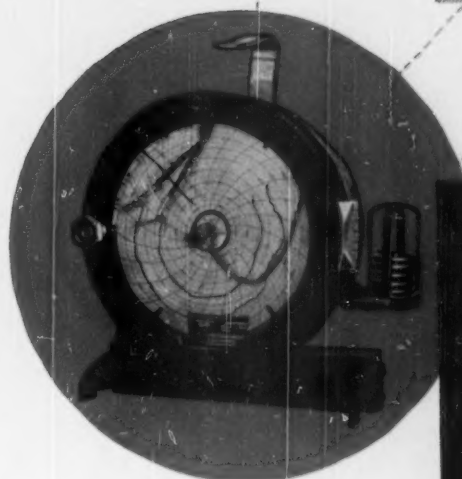
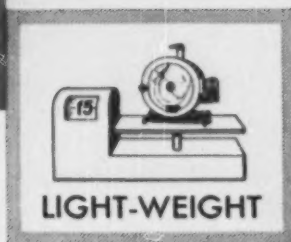
On "Paper Machine Drives," Roland A. Packard, Holyoke Machine Co., Holyoke, Mass., gave an interim report. This dealt with progress made since his presentation

Left—MURAL OF CINCINNATI MILLING & GRINDING MACHINES, Inc., hosts to Engineers at TAPPI meeting. This mural is in Engineering and Service Bldg., which is at lower right of the mural. To right are machine tool plants and in distance, the foundry is on left, and "Cimco" cutting fluid plant at right.

Middle—VIEW IN ARMCO STEEL CORP. PLANT at Middletown, O., visited by delegates, showing white hat steel rolled in continuous operation from 20 ft. slab to strip 1/4 mile long in process developed by ARMCO.

Right—C. H. KLOUMAN, Market Specialist for ARMCO, who handled details of visit of TAPPI members to his company's plant.





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FOR THE PAPER INDUSTRY

Honeywell

BROWN INSTRUMENTS

of the first paper; another paper which will be presented later.

Between 50 and 75 mills have been contacted. Among other data gathered, much progress was made in establishing a maintenance cost per horsepower. Excellent data gathered on drives led to a system of rating. Instead of just overall production efficiency, the actual drive efficiency, based on 100-hour units, has been worked out. The figures are not conclusive yet, but checks reveal that the efficiency will be very high for drives.

Materials Handling Session

At the materials handling session, presided over by A. P. Schnyder, Ebasco Services, Inc., New York City, F. D. Helverson, of Portland, Ore., chief industrial engineer for Crown Zellerbach Corp., used 68 slides of 19 actual cases to tell of "Outstanding Practices in Materials Handling in the Pulp and Paper Industry on the West Coast."

The visual descriptions, accompanied by Mr. Helverson's running commentaries, were highly interesting. The five companies cooperating in the assembly of this material indicated, through Mr. Helverson, that they are willing to supply further information on any specific kind of handling described in the talk.

"If each person in attendance would find only one case which he could adapt to his operations, we believe this presentation has been worthwhile," stated Mr. Helverson.

"If some who are viewing these illustrations of actual practices are stimulated to ingeniously re-use these already developed ideas and practices, that is progress," he said.

Outstanding Practices in Materials Handling

Some of the ideas illustrated in slides by Mr. Helverson, and the companies which he said developed them:

1. For logging, a movable spar developed by Hyster Co. of Portland and Crown Z, to cut down about \$200 cost of rigging a tree each time to make spar, and to provide a mobile spar for better logging of small wood.
2. A log pre-loader with hydraulic cylinders which elevate cross beam to proper position—



ENGINEERS AT CINCINNATI. (Left to right) GEORGE H. PRINGLE, Chief Engineer, Mead Corp., General Chairman of TAPPI Engineering Division which arranged convention; F. D. HELVERSON, Chief Industrial Engineer, Crown Zellerbach, Portland, Ore., who used slides to show new materials handling ideas; H. F. PARKER, New York & Penn Co., Lock Haven, Pa., who moderated mill maintenance session; S. D. FROST, Master Mechanic, of Macan Kraft Corp., Macan, Ga.; ROLAND R. PACKARD, Halyco Machine Co., who told of paper machine drives.

Berger Engineering Works of Seattle and Crown Z.

3. A hemlock seed cone stripper (hemlock branches put through a fence of nails (photo May 1950 PULP & PAPER, page 74) which cuts costs of obtaining seeds 66%—Crown Z.

4. An aerial seed-planting helicopter which has a mechanized counting device below the seed hopper, which discharges seeds in exhaust stream, thus carrying them past landing wheels—Crown Z.

5. Air-cylinder driven tongs mounted on slipper stick of a conventional shovel for loading logs 4 to 40 in. diameter, 48 ft. long on a trailer, eliminating dangerous hand labor in clearing logs in loading operation—Crown Z.

6. A squaring device for whole truck of farmers' wood brought into it by conveyor and 1/4 cord capacity grab which picks up squared load and piles it or loads it on conveyor to mill, all operated by one man in hammerhead crane—Longview Fibre Co. and Colby Steel & Engineering Co., Seattle.

7. Instead of the orthodox log haul, a giant bridge crane (at Camas, Wash., mill) with largest grapples (13 ton) ever made for purpose which lifts 50 tons of logs in one swoop to log deck 50 ft. above river (photo and description, PULP & PAPER, Dec. 1949, page 44)—Berger Engineering, Seattle.

8. Pneumatically controlled steel arms which encompass bundles of wood lifted to transfer deck by crane, and holds bundle while steel bands are removed—Crown Z, Camas mill.

9. First chipper over 110 in. diameter equipped with sloping bed knife, with adjustable chute for minimum loading shock on chipper disc bearings. Is 153 in. chipper with capacity for chipping 200,000 bd. ft. (about 400 cords) per hr.—Sumner Iron Works, Everett, Wash.

10. Rake pulled back and forth by reversible

winch to unload chips from railroad car to conveyor—Longview Fibre Co.

11. Gantry-type suction loader-unloader crane with pneumatic conveying system—rotary blower and suction pipe—which sucks chips from unique outdoor storage trenches at Fibreboard's new East Antioch, Calif., mill and loads them into and out of 3-unit capacity electric cars which carry them to conveyor—Sutorbilt Corp., Los Angeles, and Fibreboard (pictures and description, PULP & PAPER, June 1950, page 44).

12. Automatic and labor-saving handling and packaging of pulp sheets at Weyerhaeuser's Longview, Wash., mill. Conveyorized layboy and automatic stacker by Mathews Conveyor Co., Seattle (400 lb. stacks); Parker wire-tying machine; Baldwin 600-ton pulp press; fork truck loading from conveyor to rr. car.

13. Double roll grab attached to cable of unloading boom on ship which activates grab clamps unloading newsprint rolls from ships and also attached to fork truck for handling rolls on dock and in warehouse—Terminal Equipment Co., San Francisco.

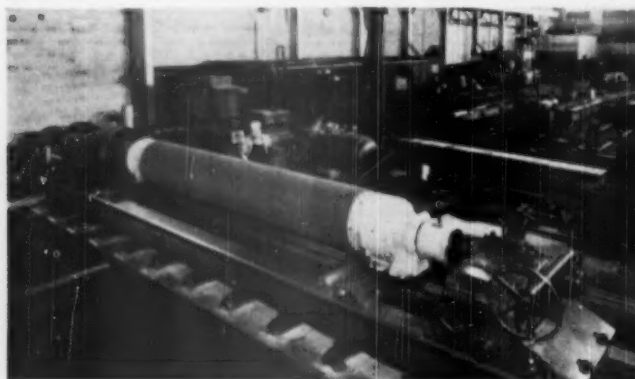
14. A 6,000 lb. capacity grab truck handling 60 in. kraft board rolls without damage from rr. cars to storage—Longview Fibre Co. and Peterbilt Motors Co., Oakland, Calif.

15. Automatic conveyor feeding a box stitching machine, placing stacks of varton blanks in operating position—Longview Fibre Co.

16. System of handling paper to and from 24 printing presses, waxing machines, laminating and coating machines, rewinders, cutters, etc., with fork trucks and Cleveland monorail electric hoists—Western Waxed Paper plants of Crown Zellerbach Corp.

17. Two chain floor conveying systems in trench—one of 3,500 ft. with pusher dogs and dragging about 220 Nutting cars, the other of 1,500 ft. dragging 95 Nutting cars, at 100 ft. per min., handling about 4,800 items a day in paper

ROLL GRINDING MACHINE, in Cincinnati Milling & Grinding Machines, Inc., plant which was visited by TAPPI Engineering delegates. It is performing grinding operation on a paper mill roll.



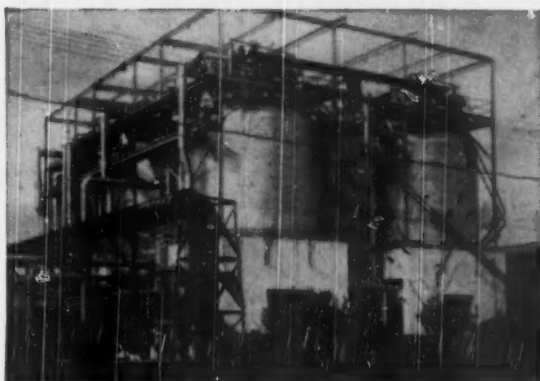
FAMILIAR OFFICE ENTRANCE of Shurtle Bros. in Middletown, O., the company which was host to luncheon on the TAPPI tour of industrial plants in the Hamilton-Middletown area.



SULPHUR

***Interesting Facts Concerning This Basic
Raw Material from the Gulf Coast Region**

***SUPERHEATED WATER...**

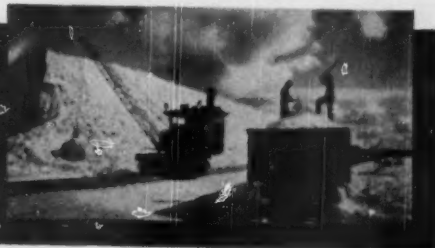



Mining operations are most successfully carried out if the water pumped

into the sulphur deposit is heated under pressure to a temperature of about 320° F. For large scale mining, enormous quantities of water are required, so, a primary requisite is an adequate supply of suitable water and an efficient power plant in which to heat it.

To insure a continuous supply of water at Newgulf, it is the practice to use river water pumped in time of flood or full flow and stored in large reservoirs. This supply is supplemented, when necessary, with well water. Water so obtained is seldom suitable for use in boilers or mine water heaters without being treated first because of natural salts in solution. Softening by chemical treatment is necessary to prevent deposition of scale on boiler tubes and hot water lines.

Loading operations at one of the huge Vats of Sulphur at our Newgulf, Texas mine. Such mountains of Sulphur are constantly being built at our mines, from which shipments are continually made.



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MORE ENGINEERS AT CINCINNATI. (Left to right) HENRY W. DOWNS, Jr., Union Screen Plate Co. of Canada, who talked on slotted screen plates; I. C. CROWDER, Mocon Kraft Corp., Macon, Ga., who gave one of the most interesting papers on "Drying 800 Tons of Kraft Daily on One Machine"; GERRY S. HAGE, Chief Engineer, River Raisin Paper Co., Monroe, Mich.; WILLIAM R. McNALLY, Link-Belt Co., who presented paper on handling products from machine to shipping dock; J. F. GSCHWIND, J. O. Ross Engineering Corp., who delivered paper on their new Pulp Dryer, illustrated in this issue with first pictures; A. P. SCHNYDER, Ebasco Services Inc., who chairmanned materials handling session.

warehouse. Paper loaded with combination pallets and racks on Nutting cars, moved by hand to chain. Chain dog catches pin dropped in floor slot and drags car along.—Zellerbach Paper Co., Los Angeles.

18. Towel cartons of double faced single corrugated, "locked" in 25 carton unit loads with a special Loadlock glue, with high shear strength but practically no tensile strength, so cartons can be removed from each other or sheet of solid fiber on which they are "locked" by just pulling on them. Loads handled with truck with chisel-type fork, on top of which is welded a thin steel plate with beveled edge. One unit load is slightly offset from the other.—Crown Z.

Link-Belt, Westinghouse Papers

William McNally, of Link-Belt Co., gave a paper: "Handling of Finished Pulp and Paper Products from the Machine to the Shipping Dock." He discussed such methods as roll elevators, many kinds of conveyors, special lowerers and methods known to reduce handling costs in pulp and paper mills.

At the machine design session, F. Richardz, of Westinghouse, gave a paper and used slides to show the advantages in efficiency, low maintenance-cost and compactness of enclosed gear drives.

"Often, the possibilities for cost reduction by the use of materials handling equipment are obscured by familiarity with, and unchallenged acceptance of, customary methods or operations. For that reason, most mills could profit from a thorough study of their processes and intra-plant transportation of materials in order to determine where potential sav-

Companies Which Sponsored Engineering Conference

Allis Chalmers	Lunkenheimer
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Cincinnati Rubber	Orr Felt & Blanket
Economy Pump	Orville Simpson
J. H. Day	Powell Valve
Duriron	Regal Belting
Freeman & Son	Roots-Connersville
Hauser-Stander Tank	Blower
Hermann Mfg.	Simonds-Worden-
Jeffrey Mfg.	White
Link-Belt	Van Range Co.
Littleford Bros.	Vulcan Copper
	Wente Electric

ings are possible. In making studies of this kind, do not overlook the ideas of the men in the mill. Much of the progress that already has been made is the result of ideas conceived and put into effect by operating personnel."

Deculator—Air Removal from Stock

Following this, C. L. Clark, of Clark & Vicario Co., discussed "Air Removal From Stock Ahead of the Headbox."

This process uses the "Deculator." At normal headbox consistencies, it removes all measurable air, said Mr. Clark. A Quebec mill has installed this new equipment.

On a newsprint machine, he noted that air bubbles disappeared. The vacuum at the couch roll went from 19 to 22 inches.

Urges Exchange With Sweden

At the engineering division luncheon, Ragnar Soderquist from Sweden spoke to the group. He is managing director of the Skutskar Mills, division, of Stora Kopparbergs Bergstags. He is also president of the Swedish technical group of the pulp and paper industry.

He cited that in both countries many committees are working on similar types of programs attacking problems of stream pollution and corrosion. He expressed his thought that there should be more cooperation between the committees working independently in the two countries. He said that the Swedish technical groups would be glad to discuss such an interchange of ideas with the American committees.

"It would be very good if we could try to speak the same technical and same chemical language, at least in the form of summaries." He also hoped that more young men from each country could work in mills and laboratories of the other.

Smoothness on both felt and wire sides increased 20% without changes in calendar roll weights. This Deculator process uses new methods in the stock pump designs, and in flow and control equipment as well as vacuum producers.

During the mill maintenance session, D. B. Hanson, of du Pont, explained "Teflon," a tetrafluoroethylene resin that has important uses in process industries. Its long-life, non-adhesive and chemical impervious properties were probably most informative to the mill engineers where "Teflon's" use as special valve packing was illustrated.

Henry W. Downs, Jr., of Union Screen Plate Co. of Canada, Ltd., presented "Slotted Screen Plates for Pulp and Paper Mills." He discussed various plates in use today, materials for these plates and general methods in use for fastening plates.

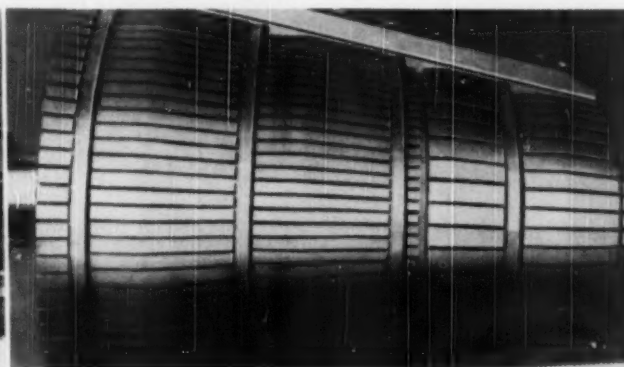
Later, a mill maintenance round table was held, and G. F. Hrubecy, Marathon Corp., Menasha, Wis., headed the discussion with a paper "Maintenance of Mill Roofs." This round table was well-attended.

Digester corrosion was the subject of a progress report by James R. Lientz of Union Bag & Paper Corp., Savannah. The installation and operation of a new 1200 lb. steam plant at Union Bag was de-

OFFICE OF BLACK-CLAWSON CO., paper machine builders, in Hamilton, O., which was on the tour itinerary for Engineering Conference delegates from Cincinnati convention.



SHARTLE JORDAN PLUG, made of a tough superior "BluCalloy" iron—Black-Clawson's latest metallurgical developments for this industry—a magnesium-treated gray iron castings made under license of International Nickel Co.



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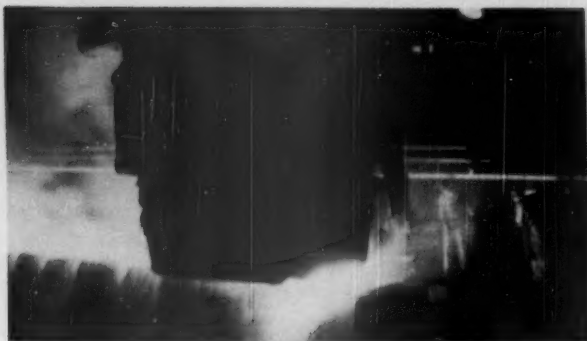
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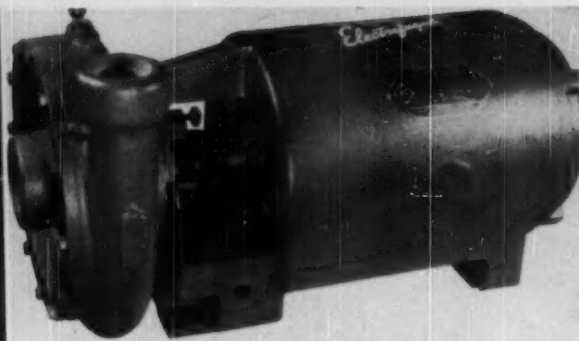
Company.....

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ENGINEERING CONFERENCE delegates saw this molten steel pouring from ladle into ingot molds, which are later rolled in $\frac{1}{2}$ mile long strips, at ARMCO STEEL CORP. in Middletown.



ENGINEERING CONFERENCE delegates in Cincinnati visiting Norwood (Ohio) Works of Allis-Chalmers saw products like this 5 hp. "electrifugal pump" with screwed connections and removable cover plate.

scribed by H. R. Arnold and R. F. Sorenson discussed selection of motors for the same mill. Both are Union Bag engineers.

Poster Wheeler Corp.'s dual circulation steam generator was described by H. B. Wallace, Jr., of that company. It utilizes two separate heat absorbing sections, each having its own independent circulating system. The feedwater is admitted to the primary section and the blowdown from the primary section is introduced into the secondary section as feedwater for the latter. In effect, this is the same principle which is applied in certain plants where both high and low pressure boilers are used and where the blowdown from the high pressure units is introduced as part of the feedwater to the low pressure units. This principle is achieved within a single setting. The dual circulation steam generator grew out of the necessity of utilizing waters in high pressure boilers which heretofore were considered undesirable where the make-up was high. In spite of the unfavorable feedwaters often available, industrial plants, in particular,

ENGINEERING CONFERENCE PLANT TOURS ARE DESCRIBED Middletown-Hamilton, O., Trip Black-Clawson Co.

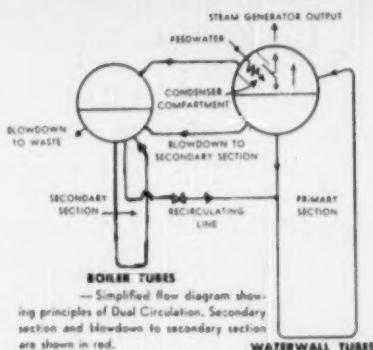
The engineering, machine and erecting departments and foundry in Hamilton were shown to delegates. They saw two sections of board machine presses under construction, these being the open type super structures that will be mounted over existing wet ends of a board machine at Ohio Box Board Co. Construction of a Fourdrinier end of a complete paper machine for Cartiera Italiana of Torino, Italy, was also seen.

A working model demonstrating a new type of felt and wire guide for paper machines was set up and in operation. Many other items of paper machine equipment, including B-C spiral bevel and hypoid gear drives, cylinder molds, seamless dryers and other auxiliaries under construction were shown.

In the Black-Clawson foundry was an exhibit of new, more weldable and tougher Black-Clawson nodular castiron called "Blackloy," made under license from International Nickel.

Shartle Bros. Machine Co.

This division of Black-Clawson, in Middletown, was host at luncheon and provided guided tours. Many paper stock preparation equipment items, under con-



were anxious to realize the advantages inherent in steam generation at high pressures and high temperatures. The steam generator permitted this without requiring uneconomical rates of blowdown to minimize the amount of impurities leaving with the steam and to eliminate harmful deposits where the heat absorption is high.

struction and finished were shown. On erecting floor were several Hydrapulpers, Jordans, Hydrarfiners, Hydracloones, Selector screens, a new Hydramill, junk remover, ragger, classifier, pumps and valves.

A "Duotrol" automatic plug adjuster for Jordans and Hydrarfiners was demonstrated. An electric test panel for testing motorized valves and other motorized equipment was also demonstrated. For the first time, Shartle division showed the method of heat-treating the new "Flint 32" Jordan plug and shell filling bars.

Armco Steel Corp.

At Middletown, one of the ten plants of this nationally famed company was toured. Armco is a producer of hot and cold rolled steel, of stainless steels which have many chemical pulp industry applications, and Armco's "Zincgrip."

The tour through the huge East Works Mill showed giant cranes carrying nearly 200 tons of molten steel at 3,000 degrees F. temperature; open hearth furnaces where special steels are made; 8-ton ingots carried easily from soaking pits to blooming mill; the continuous hot strip mill where glowing steel travels at 1300 f.p.m.; white

hot slabs reduced to a thin strip a quarter mile long in the hot mill; rolling, heat treating, pickling and finishing of stainless steel sheets.

Shuler & Benninghofen Co.

This company was established in 1858. Its Miami Woolen Mills in Hamilton are known in all regions of the country for Hamilton felts for paper machines. Their high efficiency in removing water is well known. This plant was not on the formal list for tours but made known that delegates were welcome.

Hutchins Power Station, near Miamisburg, and Economy Pump Co. also were listed for tours.

Cincinnati Trip: Cincinnati Milling Machine Co.

A 66 year old concern that specialized over 30 years in milling machines. In the early '20's a line of grinders was added and a subsidiary, Cincinnati Grinders, Inc., was formed. Today, sizes and styles of milling machines total 163; of grinding machines, 160. A production type flame-hardening machine known as "Flamatic" and "Cimcool" cutting fluid are two other products.

A mural of an air view of the various plants and buildings of this company is shown in a picture on these pages, indicating the vast extent of its operations.

Cincinnati Rubber Mfg. Co.

In Norwood, a separate municipality completely surrounded by Cincinnati. Of primary interest to delegates was the roll covering department. All kinds of rolls used in paper mills; press rolls, couch rolls, wormed felt and cutter rolls, table rolls and suction press rolls, are covered with natural and synthetic rubber compounds. Other departments produce Flexicord paper mill water hose; screen diaphragms; water marking bands; suction box hose, conveyor and transmission belting. The tour followed through entire processes from crude rubber, pigments, sulfur and chemicals mixing, to milling, calendaring, building, wrapping, curing, stripping, to finished product.

Allis-Chalmers Mfg. Co., Norwood Works

Also in Norwood, this plant has produced motors and generators since 1898 and centrifugal pumps for over 20 years. Motors have found many applications in paper mills. The pumps are used mostly for clear water or white water.

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NEW BOARD SYSTEM

GAYLORD SEMICHEMICAL PROCESS

By J. E. SAPP
Chemical Engineer, Gaylord Container Corp.
(Written Especially for Pulp & Paper)

On July 10th, the Gaylord Container Corp., at Bogalusa, La., commenced the operation of their new system for manufacturing corrugating board, thus marking the completion of a project which had been under consideration for the past several years. The actual work, which involved remodeling the paper machine and the pulp refining system as well as changing the wood handling and cooking pro-

cedures, was performed during a shut-down period of three months. The work on the paper machine was done by the Gaylord mechanical crew with supervisory assistance from the Beloit Iron Works while the work on the pulp refining system was done by Gaylord along with the Stocker Construction Co. and Rick Electric Co. of St. Louis, Mo.

The new system was designed for the

production of corrugating board, utilizing screenings from pine sulfate pulp and semichemical pulp from mixed Southern oak woods or from other species. A detailed description of the manner in which the system functions follows:

Wood Preparation

The oak wood, which is purchased by weight and which may be stored for several months before use, is unloaded onto a wood chain which discharges onto one of two parallel D. J. Murray 12 ft. x 45 ft. marking drums. These drums were formerly used exclusively for barking pine but with the installation of new barking and wood room facilities their full capacity is not required and they are now used alternately—first, one with oak, then the other with pine. The oak wood is discharged from the barking drum and conveyed to two D. J. Murray six-knife chippers, also formerly operated on pine. The chips from these chippers go to two Rotex vibrating screens, the rejects from which are rechipped in a hammer mill and rescreened while the fines are mixed with bark and used for fuel. The screens are so arranged that the chips may be run onto a hardwood conveyor belt when oak is being chipped or onto the main pine conveyor when pine is being chipped.

The oak chips thus are conveyed via the hardwood conveyor belt to chip bins about four 1300 cu. ft. stationary digesters, located in the main digester room building. Cooking is by the sulfate process. Approximately 17,500 lbs. of dry oak wood are charged per cook.

After the cook is completed, the digester is blown to a diffuser room and the pulp washed in the normal manner, first using weak liquor from a previous cook, then using water recovered at a later step in the process. In this manner a large portion of the alkali is recovered and is then mixed with the liquor from the pine sulfate pulping operation and sent to the recovery system.

Pulp Preparation

The pulp, after dumping from the diffusers, is pumped to agitated storage tank located near the Sprout-Waldron disc refiners. Also located near the disc refiners are two agitated tanks used for storing the pine screenings. The manner in which the disc refining is carried out is as follows:

(a) The oak pulp is pumped to a head-box from which it is fed to drainer con-

THIS IS ANOTHER ARTICLE IN SERIES ON NEW PULPS Processes in Other Mills to be Told in Later Issues

This is another in a series of articles prepared especially for PULP & PAPER, recording the progress made in various parts of the continent in commercial production of high yield semichemical pulps, using varieties of wood species which had long been considered unsuited for paper and paperboard products.

In the April 1950 issue, an article by our Canadian editor described the neutral sulfite semichemical plant built by Abitibi at its Sturgeon Falls, Ont., mill, enabling it to use 75% to 100% hardwoods in making 12 pt. corrugating board.

In the August 1950 issue, we reviewed a quarter of a century of semichemical pulping, from the time the Mead Corp. introduced the process at Knoxville, Tenn., after preliminary pioneering by the U. S. Forest Products Laboratory in Madison, Wis., up to the present time with over a score of mills in the U. S. and Canada now making products from corrugating and wrapping to book match, bottle cap, playing card and coated magazine papers.

Principal advantages in semichemical processes are:

1. Unusual high pulp yield from processed wood—up to 85%.
2. The many wood species that can be used—some of them formerly considered weed trees or only of value as firewood—like oak, hickory, aspen, birch, beech, Douglas fir, etc.
3. Economy in use of chemicals.
4. Lessening of effluent b.o.d.
5. Improved products, particularly in corrugating.

Semichemical sulfite or kraft processes are continuing to spread. Glassine papers may be made with semichemical pulp next. The production of these pulps now exceeds soda pulps and in many cases may substitute for soda pulps.

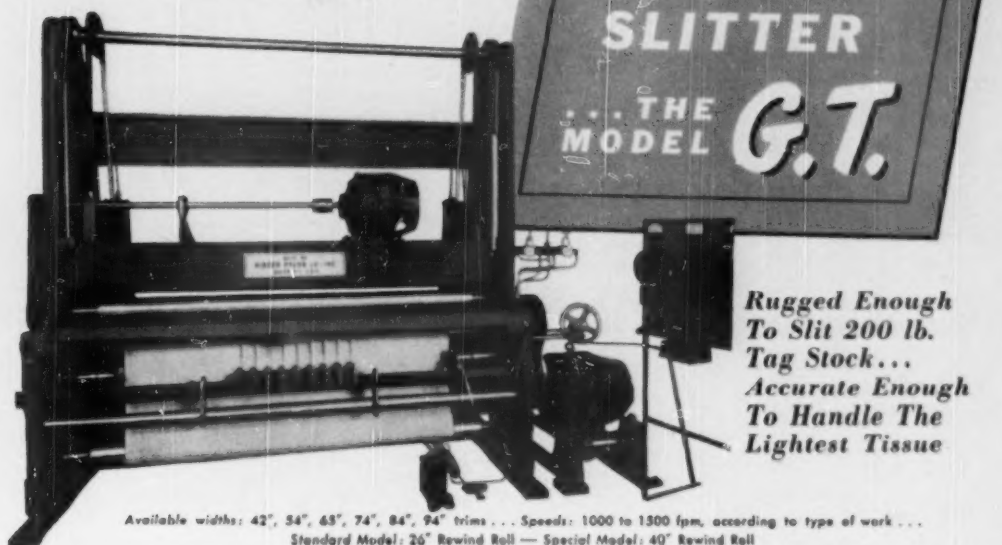
Also in the August 1950 issue, we published the paper which Laurence Murtfeldt, pulp superintendent, Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., presented at the Chicago 1950 convention of the Superintendents' Association (along with photographs and additional descriptive matter obtained especially for PULP & PAPER), on the neutral sulfite semichemical process at his mill. Consolidated makes an aspen pulp, which is bleached and mixed with regular sulfite pulps in making coated magazine paper.

At that same Chicago meeting, J. E. Sapp, chemical engineer for Gaylord Container Corp., also gave a paper on semichemical kraft process at his Louisiana mill for making a superior corrugating board. He told how an oak semichemical required only 7½% pine kraft pulp mixture to prevent wet end breaks, and how a gum semichemical required a mixture of about 35% pine screenings.

Mr. Sapp has written especially for PULP & PAPER the description of the Gaylord system, which is published in this issue. It is followed by some of the highlights from his technical paper, given at Chicago.

In our next two issues—December and January—we will bring our readers descriptions and illustrations of new semichemical neutral sulfite processes developed at two other mills. They are significant because they have developed a superior corrugating board in both instances, but by different manufacturing processes. They have made possible wider use of that once-maligned weed tree, the aspen, and in the case of one company, permitted it to abandon altogether the production of strawboard and the purchase of board from the South.

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veyors. Each of three drainer conveyors discharges the dewatered pulp into a new Sprout-Waldron 36-2, 400 HP. disc refiner which in turn discharges into a chest.

(b) The wet room rejects are pumped from the tanks to a drainer conveyor which discharges to a screw conveyor. Two variable speed screw conveyors at right angles to this conveyor feed two Jeffrey hammer mill shredders, the excess of pulp over that required by the hammer mills being conveyed back to the storage tanks by the main screw. The hammer-mills are located above two new Sprout-Waldron 400 HP. 36-2 disc refiners, the pulp falling directly from each hammer-mill into a disc refiner, and from here into the same chest into which the three oak refiners discharge.

(c) From this "primary" chest the mixed pine-oak furnish is pumped to a headbox feeding four Sprout-Waldron 300 h.p. 36-1 disc refiners. These discharge into a "secondary" chest.

Machine Room Flow and Changes

After the Sprout-Waldrons the pulp treatment is completed in an unchanged portion of the old system, pumping from the secondary chest to a chest immediately behind the paper machine, thence through three Miami No. 6 Jordans to an adjoining chest and finally through a Miami No. 2 and Miami No. 6 Jordan to the paper machine. An Oliver Thickener is located above the first of these chests and is used for recovery of broke beater and couch pit stock.

The changes which were made on the machine itself consisted of installing a new Shartle fan pump, rebuilding the headbox and widening the slice, replacing the first suction press roll, reconditioning the remainder of the wet end, installing a new Beloit breaker stack, and new dryers, changing the location of the older dryers, and installing a new Beloit calendar stack, a new Cameron rewinder, Westinghouse 780 HP. turbine, Midwest Fulton dryer drainage system, J. O. Ross hood and Ross-Grewin air system.

Advantages of New System

As for the advantages of the new system over the one formerly employed, it has been found that the barking, though incomplete, is nevertheless a considerable improvement over the former practice of using unbarked wood, while the use of the disc chippers and screens results in more uniform higher quality chips than were obtained by the use of a hammermill. The liquor recovery obtained by washing in diffusers is, of course, higher than was obtained in the old system by blowing the liquor from globe digesters.

The Sprout-Waldron installation has given excellent service and at present is being controlled to give a pulp of relatively high freeness containing a practically negligible quantity of shives. This

Importance From Wood Use Standpoint

The Gaylord Container Corp. not only is the owner of the oldest commercial pine plantation in the South, but also holds a large and carefully managed forest acreage well up in the six-digit classification.

A former forester himself is Vertrees Young (shown in picture), now the executive vice president of Gaylord, and therefore it seems most fitting that this new wood use process, described in this article, be developed in his mill. More efficient use of forests is his greatest interest.

Originally, little attention was paid to hardwoods in the Southern pulp and paper industry and in recent years the mill that used "hardwoods" generally did not include the oak, which is difficult to handle successfully.

Thus, while pine stands were enjoying silvicultural advancement through improvement and sanitary cuttings, the hardwoods remained in the forest; and by hardwoods, is really meant the non-commercial part of the stand. Cull mature hardwood trees went into box and crating during the war years, but there has been no real market for oak thinning.

Hence, the development of a pulp production line with rebuilding of a paper machine at Gaylord to consume oak is of wider interest because of its value to the forester. While effecting the development, Gaylord has provided a mechanical arrangement of the greatest potential flexibility—providing for a future possibility of barking, chipping, and cooking three different kinds of woods separately and simultaneously.

The linking of the new semi-chemical pulp production to the sulfate process was effected because Gaylord is a sulfate process mill and this new installation fits in with presently installed equipment.



THE AUTHOR OF THIS ARTICLE and some of the Gaylord Mill Executives who were directly or indirectly involved in development of the new semichemical process described here (left to right): J. E. SAPP, the author and Chemical Engineer at Bogalusa. ALFRED SUTER, Swiss-born General Superintendent. WILBUR F. GILLESPIE, Ontario-born Technical Director who studied under the late Dr. Harold Hibbert and in Sweden. J. M. MURRAY, Pulp and Paper Mill superintendent. FRED E. AUGUSTINE, Board Mill Superintendent.

installation was, however, designed with some excess capacity in order that as the old Jordans, which are in bad condition, wear out the Sprout-Waldrons will be given a greater portion of the refining load. It is thus contemplated that the refining installation will eventually consist of the Sprout-Waldron installation plus, possibly, two finishing Jordans to be used by the machine tender for the final adjustment of freeness.

The machine has also performed quite satisfactorily and the speed has been increased week by week as the crews have become more familiar with its operation.

It is believed that the full rated capacity should be reached within the next few weeks.

EXCERPTS FROM MR. SAPP'S Paper Given at Chicago: Results of Experiments

"The flat crush test obtained with a neutral sulfite semichemical corrugating medium made from black gum was found to be superior to that obtained with a black gum corrugating medium made by the sulfate process. (In each case, about 35% screenings from pine sulfate pulp was added to the furnish because of numerous wet end breaks incurred when only gum pulp was used.)

"In another much more detailed series of experiments on the semichemical pulping of mixed oaks, it was found that a higher quality pulp was obtained by the use of the sulfate process than by the neutral sulfite process.

"Since about 7½% pine sulfate pulp was added to each of the various oak furnishes to prevent wet end breaks, which each of the gum

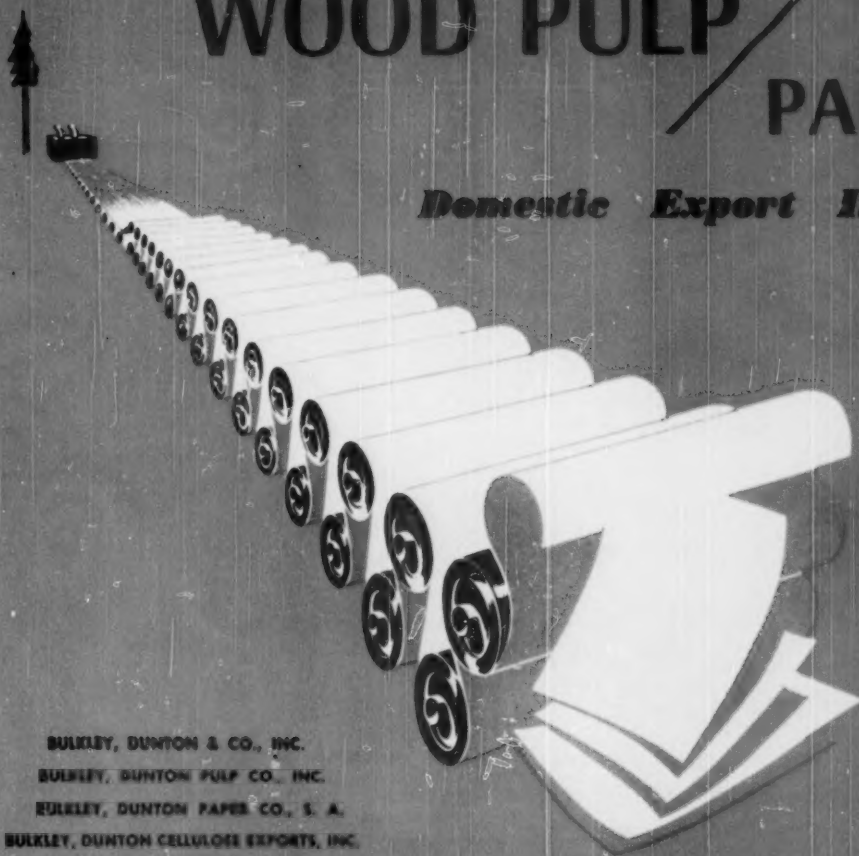
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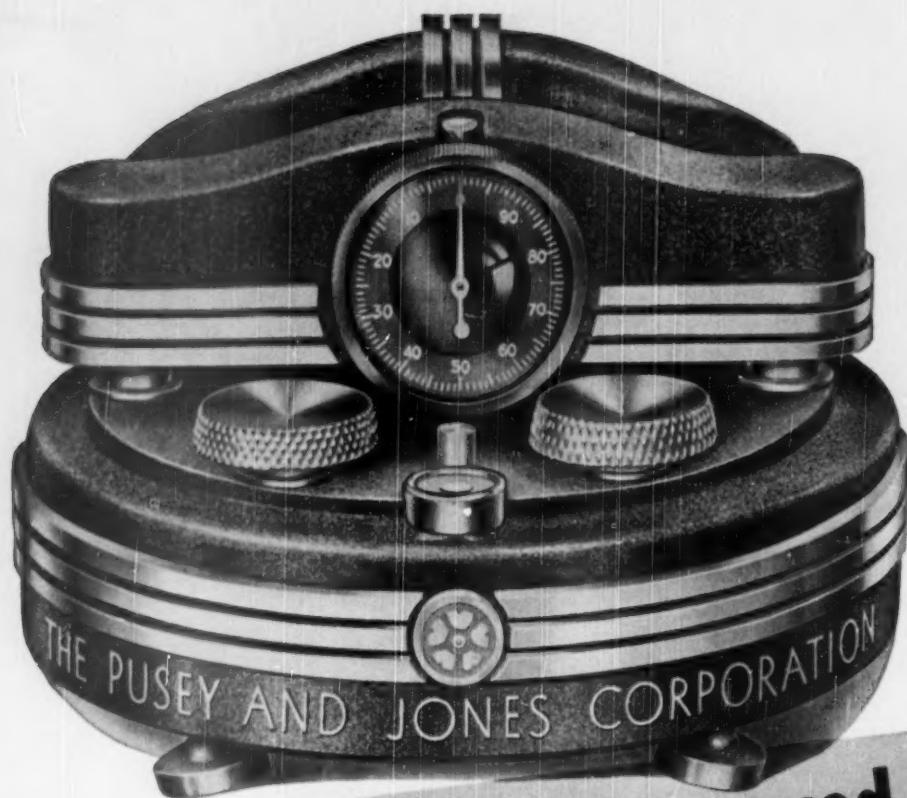


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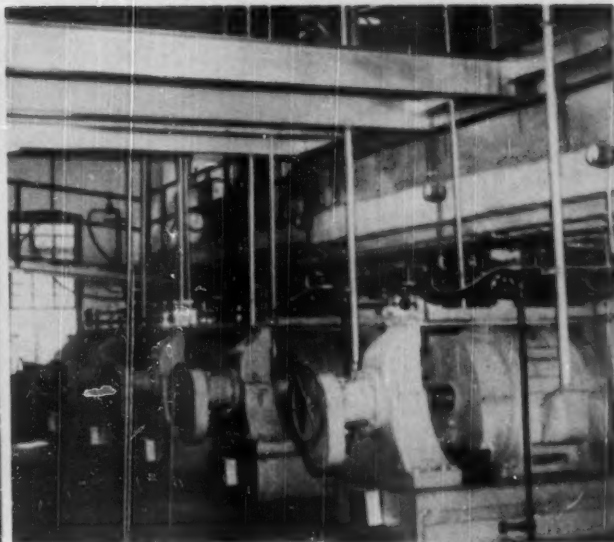
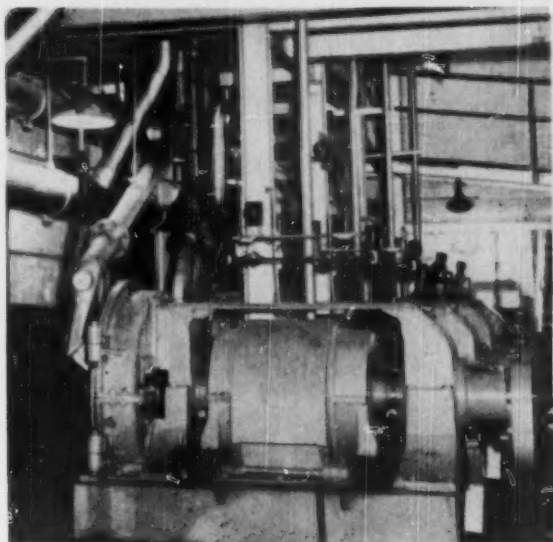
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SPROUT-WALDRON REFINERS—four of these units are on the left and five are seen on right—are key units in the Gaylord semichemical plant. The reconditioned ones are 300 HP. 36-1 Sprout-Waldrons, which accept mixed oak-pine stock,

discharging to secondary chest. The new ones—appears in the room as in this picture—are 400 HP. 36-2 Sprout-Waldron disc refiners, two handling shredded rejects from Jeffrey hammermills and three performing primary refining on oak stock.

(Continued from Page 60)

furnishes contained about 35% pine screenings, the relative value of the oaks and gums should not be inferred from these results of these investigations. As a matter of fact, in actual operations over a considerable length of time, using both mixed gum and mixed oak sulfate semichemical pulps along with pine screenings, it has been found that the oak is only slightly inferior to gum, the respective average flat crush tests on 'A' flute board being about 32 and 34.

"From the standpoint of economy, in cooking semichemical pulp for corrugating board, it is desirable to cook the hardest pulp consistent with high quality and efficient operation in both the paper mill and box factory. Actually, these aims may conflict; and the optimum degree of cooking to obtain the best overall operation may be a compromise solution very difficult to determine. However, this problem has been studied in the case of the oak neutral sulfite semichemical pulps discussed above and also in a series of experiments with pine sulfate semichemical pulps.

"In both instances, it was found that the

hardest pulps, i.e., the oak pulp containing 19.2% lignin and the pine pulp containing 19.4% lignin, were not only harder to defiber but also caused more trouble on the paper machine. Also, they did not corrugate as easily. In addition, the quality of the corrugated board from these pulps was apparently a little lower, though the data as to this observation are not conclusive.

"On the other hand, the softest pine pulp (12.8% lignin) was too "springy" to run well on the corrugator; while the softest oak pulp (7.7% lignin) tended to crush when the double backer was applied.

"In short, the optimum combination for economy, efficient paper machine operation and efficient box factory operation occurred in both cases when the pulps were cooked to a lignin content of about 15 to 19%. Harder pulps gave trouble both in the paper mill and box factory; softer pulps were not only less economical but also did not run as well on the corrugator.

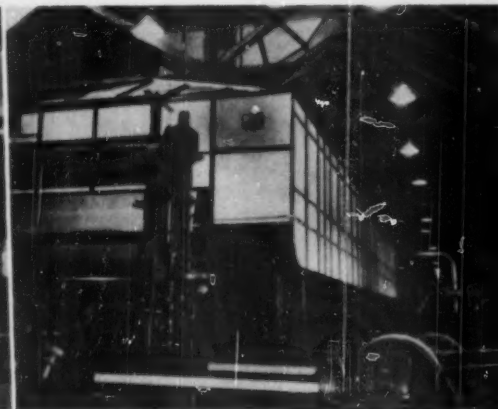
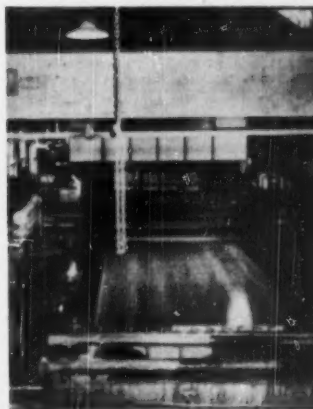
"While many semichemical pulp producers do not recover the used cooking liquors, recovery becomes very desirable, when large tonnages are involved—not only because of the

economic loss incurred in discarding large quantities of chemical but also because of the resultant stream pollution. Sulfate semichemical cooking liquors, of course, can be recovered by evaporating, burning, and recausticizing. This practice has been followed at Bogalusa since 1941, the semichemical liquor being mixed with liquor from the chemical pulping prior to evaporation.

The percentage recovery of chemicals has amounted to approximately 45 to 55% when the excess liquor has been blown from globe digester at the end of the cooking cycle. When the semichemical pulp has been cooked in stationary digesters, blown to diffusers, and the pulp washed (which procedure is now completely replacing the use of the globe digesters at Bogalusa), the chemical recovery has been increased to 80 to 90%. Still higher recoveries may be obtained with a more modern system employing a blow tank followed by disc refiners and rotary vacuum washers.

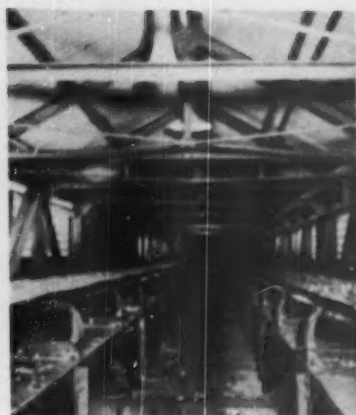
"The recovery of the chemicals from waste neutral sulfite liquors in their original form has not yet been accomplished on an economical commercial basis. However, such liquors when evaporated, burned, and causticized in the same

VIEWS OF EQUIPMENT IN GAYLORD'S PROCESS: LOOKING OVER REBUILT HEADBOX and Fourdrinier section. Stock from mixed oak chips and pine chip-ped sawdust makes corrugating.

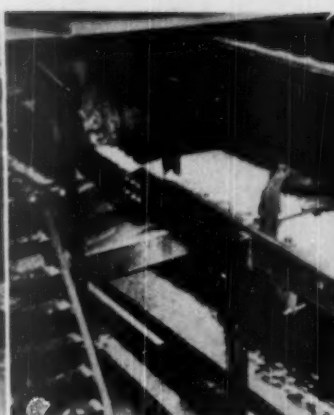


J. O. ROSS ENGINEERING HOOD and backside installations for the Beloit machine rebuilt for semichemical product.

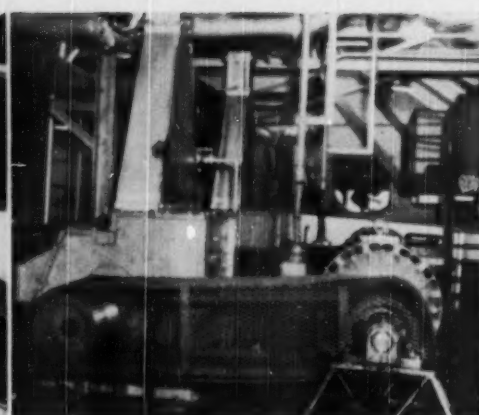
FOXBORO PRESSURE CONTROL VALVE reduced pressure to overcome tendency for packing of oak chips in diffusers.



MORE GAYLORD EQUIPMENT VIEWS:
LINK-BELT CONVEYORS carry pine chips on left and oak chips on right to chip bins. Note steps between, due to steepness.



TWO BELT CONVEYORS carry pine chipper sawdust at top, oak chips below, in the plant. Arrangement affords easy switching of wood species.



JEFFREY HAMMERMILL SHREDDERS which process wet room rejects of oak chips, discharging to Sprout-Waldron refiners.

manner as sulfate waste liquor yield a liquor of high sulfidity suitable for sulfate pulping. Thus, a combined operation can be carried out in which chemical pulp is prepared by the sulfate process, semichemical pulp by the neutral sulfite process, and the used semichemical cooking liquor utilized as makeup instead of saltcake to replace part of the losses from the sulfate system. This modus operandi was followed in the experiments on the neutral sulfite pulping of oak, the entire recovery system having operated normally using the mixed oak neutral sulfite-pine sulfate waste liquors. The percentage recovery of chemicals in these experiments ranged from 77.7 to 93.1%.

Refining

"Since semichemical pulps are only softened during cooking, mechanical defibering and refining play a very important part in their production. It is believed that the best type of refining system for producing a corrugating board from semichemical pulp is a two-step system. In the first step, the softened chips should be defibered without excessive cutting, in the second, the fibers should be cut, fibrillated, etc. to obtain the desired strength properties in the sheet.

"For the defibering stage, disc refiners commonly are used. Such refiners also may be used for the second or refining stage; but other refiners such as Jordans, are also suitable for this application and commonly are employed for it!

"Screens may be used after either stage of refining; and they should improve the quality of the sheet as well as the ease of handling on the paper machine.

"In defibering semichemical pulps with disc refiners, actual operating experience at Bogalusa, as well as considerable experimental work has demonstrated the following facts:

"1. It is particularly important to design the feeding system so as to assure a smooth even feed of pulp to the mills.

"2. The consistency of the pulp fed to the mills should be fairly high. To illustrate: The results of an experiment on defibering oak sulfate semichemical pulp are listed in an accompanying table. The advantage of running the consistency at 8%-10% or even higher is clearly shown by the fact that, with the same power consumption, fewer screen rejects are obtained and more strength development takes place at the higher consistencies.

"3. If operating without screens, as is done at Bogalusa, a hard semichemical pulp should be put through two passes of disc refining before the final treatment in Jordans. This practice is advised because if there are any undefibered splinters in the stock going to the Jordans, some are likely to get through and

EFFECT OF CONSISTENCY IN DEFIBERING OAK SULFATE SEMICHEMICAL PULP IN DISC REFINER AT GAYLORD CONTAINER CORP.

(This Table Presented at Chicago Meeting by Mr. Sapp)

Throughput—Tons O.D. per day	39.2	39.2	39.2	39.2
% Consistency	5.3	6.8	7.8	9.5
Power Drawn—HP	219	224	224	229
KWH/Ton	105	107	107	109
Freeness—cc S.R.	732	675	654	642
Flat screen analysis—				
% on .012" screen	12.9	10.4	9.2	6.9
% thru .012" screen	87.1	89.6	90.8	93.1
Classification—				
% on 14 mesh	18.2	15.9	14.4	12.6
% on 20 mesh	30.1	29.5	29.3	26.6
% on 40 mesh	25.4	25.3	25.4	25.3
% on 100 mesh	11.0	10.8	10.6	11.4
% thru 100 mesh	15.3	18.5	20.3	24.1
% Mullen—				
Unscreened	15.8	19.6	19.7	23.5
Screened through .012" screen	18.9	22.2	25.3	26.9
1. Mill was a Sprout Waldron type 36-1. New plates type 16008.				
2. 5 gm samples for freeness test.				
3. Clark classifier used in classification tests.				
4. % Mullen on a 24 x 36 x 480 ream weight. Sheets made by TAPPI standard procedure and tested after conditioning at 50% RH and 73°F.				
5. Disc clearance constant in all cases.				

cause trouble on the paper machine.

"After the initial defibering in disc refiners, the stock should be somewhat similar to raw chemical pulp—its subsequent refining also is similar and needs no comment.

Conclusions

"From the preceding operational and experimental data, it is believed that the following conclusions are justified:

"1. Satisfactory pulps for corrugating board can be made from a wide variety of wood species, including some hardwoods—such as the oaks, which are not ordinarily considered as suitable for pulping.

"2. The most satisfactory method of wood preparation which has been tried is the conventional disc chipper following a barking drum, even though in the case of the hardwoods it has not been found practical to remove all the bark in a barking drum.

"3. Insofar as quality of the corrugating medium is concerned, the sulfate semichemical process is apparently better for some species, such as the oaks; while the neutral sulfite process is better for others, such as the gums.

"4. With oak neutral sulfite semichemical pulp or pine sulfate semichemical pulp, the

optimum degree of cooking for best overall performances in the paper mill and box factory is in a range of lignin contents about 15% to 19%. It also is believed that this same optimum range may be roughly applicable with other species or processes.

"5. The used cooking liquors from either process can be recovered, mixed with regular sulfate black liquor, evaporated, and burned without any appreciable difficulties, thereby economizing on chemical as well as reducing stream pollution.

"6. In defibering semichemical pulps with disc refiners (which can be done advantageously prior to washing), care should be taken to assure a smooth even feed of high consistency in order to obtain maximum performance."

Union Bag Has Three Mayors and Two Councilmen

Union Bag & Paper Corp., at Savannah, Ga., has two mayors of nearby towns, an honorary mayor and a couple of councilmen in its employment.

Harvey McDonald, master mechanic of the bag factory, is mayor of Pooler, Ga., and his administration has eliminated long distance calls between Pooler and Savannah and is trying to get transit line service.

Andy Anderson, of the power department, is a popular mayor of Hardeeville, across the Savannah River in South Carolina, as evidenced by the fact he is in his sixth year in that office.

Otis Sikes is the "honorary mayor" of Cobbtown, Ga., in Tatnall county.

Dave Knight, shift superintendent in the paper mill, has been an alderman of the City of Savannah since 1948, the youngest member of the aldermanic board.

Warren Oglesby is councilman of Garden City, which claims to be the only American town that doesn't levy taxes.

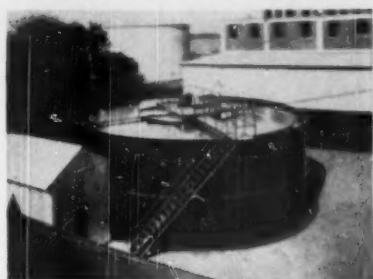
Changes Company Name

The Paraffine Companies, Inc., with a paper mill at Emeryville, Calif., has changed its name to PABCO Products, Inc. There is no change in the management or policies of the company.

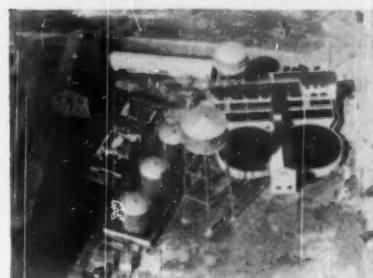
The trade name, PABCO, has been used for 50 years to identify the diversified products of the company.



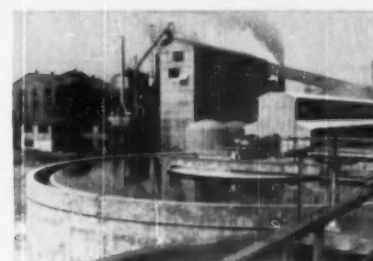
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"OPEN HOUSE" MARKS HISTORIC EVENT

When Eli Whitney perfected the cotton gin, providing a cheap mechanical means of separating cotton staple from the seed (done by hand to that time), there was a great influx of capital into the Natchez, Miss., area. Men of fortunes took up immense tracts of lands on the Mississippi bluffs, and in the Louisiana delta across the big river. Great houses, with fine embellishment and furniture from Europe, graced the plantations. The fleecy white staple sometimes returned a profit that matched the investment in a brief period.

King cotton was swept from the area by the boll weevil; the furrowed soil lapsing back into woodlands as the years swept past, leaving the magnificent old homes as show places for the annual "Natchez Pilgrimage."

On Sept. 20, Natchez formally celebrated the return of cellulose as a major product of the soil in the "open house" for the new, unique dissolving kraft pulp mill, erected by International Paper Co.'s Kraft Division, which was witnessed by a PULP & PAPER editor. The mill had been in production for several months, starting on Southern pine; but on that day it turned to 100% use of gum, a hardwood. The mill was planned for production from hardwood, which will provide a needed silvicultural outlet for these lands that once produced cotton. It will make 100,000 tons a year of rayon and dissolving pulps, increasing North American output 13%.

In cotton-worn lands of the eastern belt, it has been demonstrated that the pine tree can produce more cellulose per acre a year than the displaced cotton. With the way opened for utilization of both hardwoods and pine in the Southern pulp mills, perhaps richer lands near the Mississippi will produce other fortunes in trees.

Between 300 and 400 special guests were escorted through the mill on the 20th. They rode in special buses past the immense, wide-spread buildings of the \$20,000,000 plant. Fine pressed brick on three sides with the fourth only closed by corrugated building material provide mute reminder that this is to be the first of a three-unit installation. After the grounds tour, the visitors were ushered past the Beloit machine where high-white pulp is formed into sheets, and then cut to sizes and bundled for shipment.

In the east end of the vast shipping room, an attractive display covering the emergence of modern-day miracle products from the tree separated at space filled with comfortable chairs and a speakers' platform and dais. Here officers and directors of International Paper, with the aid of Mississippi's Governor Fielding H.



I. Y. (IKE) EAST (left), new Manager of first dissolving pulp mill using kraft process on hardwoods, built by International Paper Co. at Natchez, Miss. He was for years IP's Manager at Springhill, La. J. T. PENINGER (right), is Agent at Natchez. Each IP Southern Kraft Division mill has an Agent as well as Manager. The Agent is direct representative of top management.



Wright and leading Natchez citizens, formally dedicated the mill.

The visitors to the mill were greeted by Mill Manager I. Y. East (formerly manager at Springhill, La.); then greeted by W. J. Byrne, Natchez Association of Commerce president. Erling Riis, IP vice president, operations and production, Southern Kraft Division, then assumed the role of "master of ceremonies." Governor Wright was the next speaker. Maj. J. H. Friend, IP vice president and general manager of the Southern Kraft Division, introduced IP President John H. Hinman, whose most interesting talk about the location of the Natchez mill embraced a strong talk for woods fire control.

The afternoon ceremonies were followed by a reception at the Hotel Eola roof garden in the evening. On the following day the mill was host to throngs of visitors from Natchez' territory.

EQUIPMENT AND FLOW IN NEW NACHEZ MILL

The mill site and railroad rights-of-way occupy 1,000 acres, located on St. Catherine Creek, about three miles southwest of the city and the Mississippi River. On March 3, 1949, construction started. It was completed May 12, 1950.

Wood is unloaded from trucks and railroad cars by cranes or hand to yard storage or water conveyor to process. An escalator conveyor removes wood from the flume and delivers it to conveyors feeding two hydraulic barkers, built by the Worthington Pump & Machinery Corp. The barkers are designed for 1200 p.s.i. working pressure and to handle wood pulp logs approximately 5 ft. in length, one at a time, butt to butt, at a rate of 180 per minute. Barkers are each

NEW NACHEZ PULP MILL'S SUPERVISORY STAFF

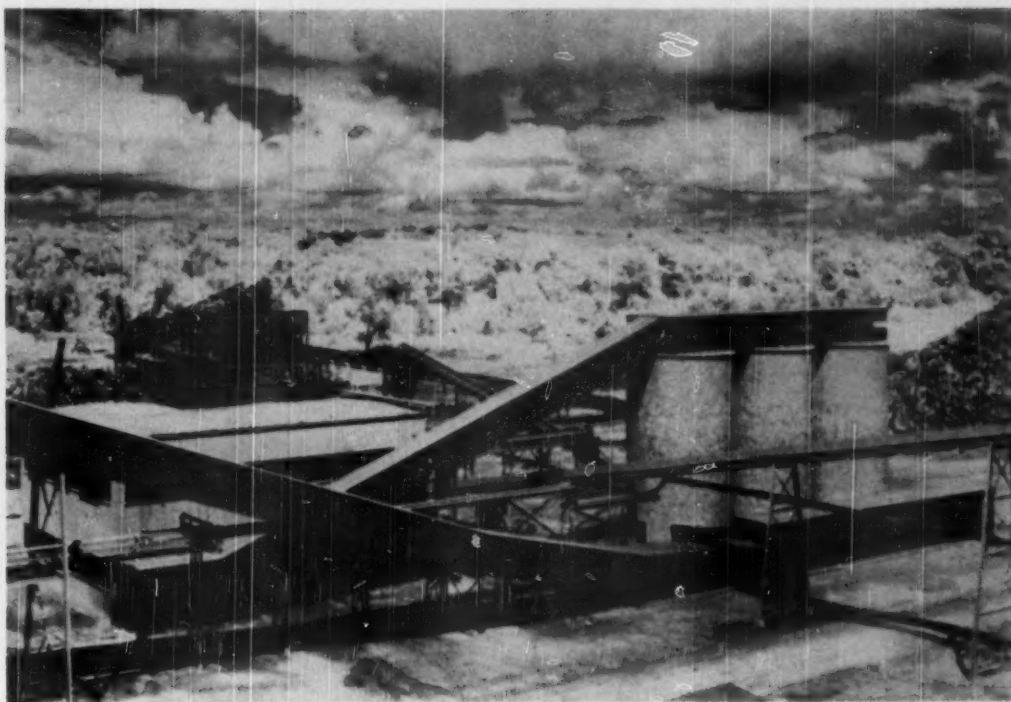
Mill Manager	I. Y. East
Production Supt.	E. E. Ellis, Jr.
Technical Director	J. M. Van Hooie
Utility, Maintenance & Engineering Supt.	E. C. Guidroz
Paper Mill Supt.	R. D. Jordan
Pulp Mill Supt.	Emmett Jones
Chief Chemist	C. T. Hightower
Plant Engineer	T. C. Payne
Master Mechanic	Fletcher Poulau
Power Plant Supt.	B. E. Lynd
Chief Electrician	C. W. Sawyer
Personnel Director	G. W. Biron
Safety Director	Frank Holland
Woodyard Supt.	G. G. Boyd, Jr.
Wood Procurement Supt.	D. V. Logan
Division Forester	A. K. Dexter
Mill Agent	J. T. Peninger
Purchasing Agent	J. W. Oenadager
Chief Accountant	B. F. Ritchie

equipped with Impco filters for closed system.

Barked wood is chipped by a multi-knife chipper. The chips are screened and the oversize chips are rechipped. Chips are conveyed by belt to tile-constructed chip silos built by Stebbins Engineering & Mfg. Co., and discharge plate feeders are by Link-Belt Co.

There are eight carbon steel digesters, 13 feet in diameter by 57 feet in length, these being furnished by A. O. Smith Corp. and lined with carbon brick by Stebbins Engineering Co. They are said to be the largest for kraft in world, with 5460 cu. ft. capacity each. Nozzles are lined with Type 316 stainless steel. Unique are the 6 ft. 6 in. knuckle radius cones. Digesters are loaded by belt conveyor directly from silos. Chips are weighed for accurately determining the chip charge to each digester. A shuttle conveyor arrangement permits the loading of the various digesters, as required by the cycle. The chips are cooked in these digesters, which have circulating and auxiliary equipment, including digester strainers furnished by Electric Steel Foundry Co. of Portland, Ore. Esco designed a new type of stainless steel digester relief condenser for this plant. A great many Cooper stainless steel valves are used in the pulp mill, and piping and piping fittings in stainless steel are by Tri-Clover Co. After cooking (note discussion of pre-hydrolysis treatment for this process in another article in this issue) the charge from the digester is blown into a blow tank and from there the pulp is washed over the line of 12 Oliver United Filter brown stock washers, driven by Reliance V-5 motors.

The company has announced that it is using entirely new methods for purification.



STEBBINS AT NATCHEZ

WHEN the International Paper Company's new Southern Kraft Division mill began operation at Natchez, Mississippi, three large silos built of Stebbins reinforced Semtile construction were ready for storing the southern hardwood chips for processing into pulp.

Also the digesters had been

lined with Stebbins thin carbon brick linings for complete corrosion resistance.

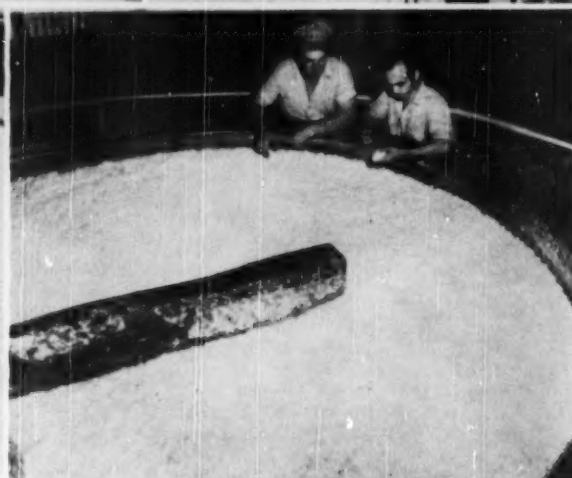
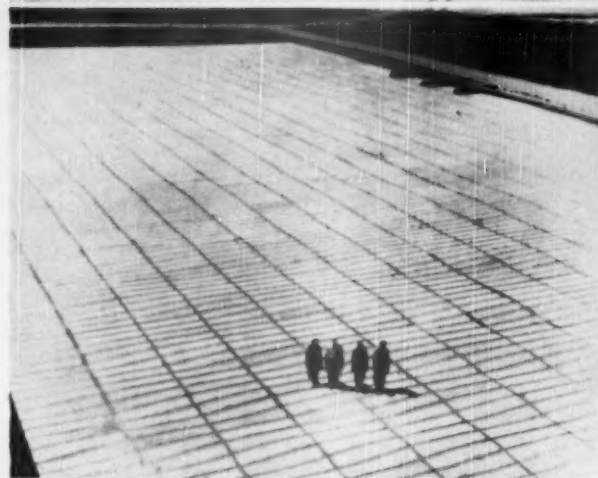
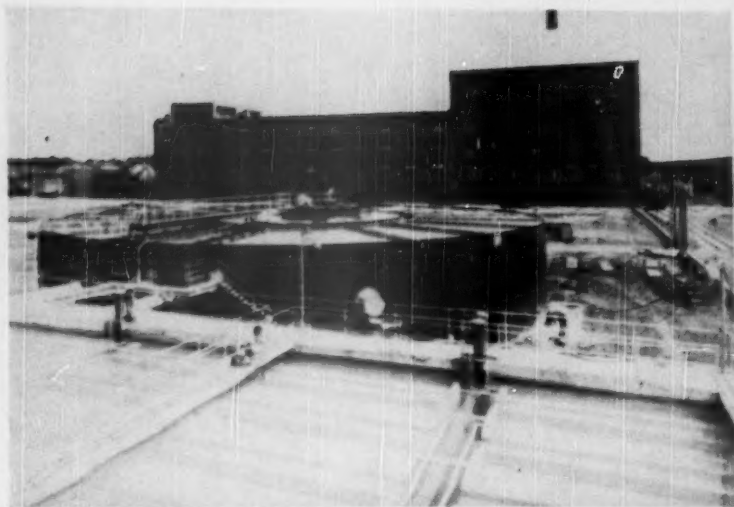
The low density bleach towers, washer vats, and many other tanks are Stebbins Semtile construction while all tile lined chests and towers have Stebbins Scmplate linings to assure long life and clean, trouble-free operation.



Stebbins Engineering Corporation

TEXTILE TOWER

SEATTLE 1, WASHINGTON



INFILCO 30 MILLION GALS.-PER-HOUR WATER TREATMENT PLANT (at upper left) for new Natchez mill is said to be largest of its kind in industry. In background are pulp mill and higher section is the multi-stage Kamyr bleach plant using new purification processes. At upper right, B. E. LYND, Power Plant Supt., stands

before the power house. Lower left: An unusual scene—four workers crossing concrete roof on water storage. Lower right: R. D. JORDAN, Machine Room Supt., checks Sandy Hill Brass & Iron Works Kamyr-type blending chest mixture with a technician.

tion and bleaching. Washed pulp is screened on Waterous flat screens furnished by Montague Co. and is thickened and further washed on four deckers with Reliance V-5 drives, which discharge stock into Kamyr storage chests. From chests the pulp is pumped to a multi-stage I-P modified Kamyr bleach plant, with equipment from Sandy Hill Iron & Brass Works. Sandy Hill is licensed U. S. representative for the Scandinavian Kamyr system. This one employs both low density and high density stages with vacuum washers between stages.

Bleached pulp is screened on Waterous flat screens and thickened and further washed on Oliver deckers. They discharge into Kamyr type stock chests for the pulp dryer. The furnish, after passing through Jordan refiners, is further cleaned by Nichols Engineering Vortraps ahead of the headbox of the Beloit Fourdrinier 220 in. wide drying machine.

This Beloit has enclosed mechanical gear drive provided with separate hypoid units at each station and designed for a maximum speed of 600 FPM with a line-shaft speed of 500 RPM. The headbox is of special design, the distributor is of stainless steel, the slice and pond sides of cast brass and the apron board is Monel-covered. The press section is the Beloit vertical type, with felt stretchers and automatic felt guides and hand guide equipment.

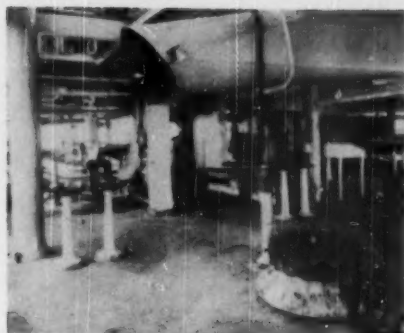
The 5-part dryer section consists of 78 paper dryers, 60 inches in diameter, each part with felt handling equipment, and completely covered by a Ross Engineering 302 ft. hood with seven 66 in. exhaust uptakes installed. The hood is constructed of Johns-Manville Transite with removable panels. Dryers are of the latest Beloit high pressure design and suitable for operation up to 125 lbs. steam pressure. A Ross-Grewin air system furnishes filtered air to dryers. The reel is a Beloit

heavy-duty kraft reel having a 36 in. diameter constant speed reel drum, and provides for 84-in. roll diameters.

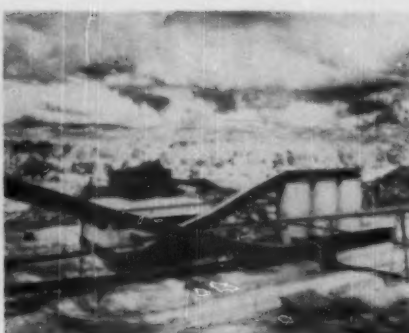
After drying, rolls of pulp are cut into required sheet size by a Beloit heavy-duty high-speed cutter, with Beloit slitters. Sheets are handled on a layboy and conveying system to three Baldwin 600-ton baling presses. In this system, bales are weighed, wrapped and tied. Storage room is provided and equipped with overhead cranes.

The hardwood bark after crushing will be conveyed by Hofft feeder to a Babcock & Wilcox bark burning boiler.

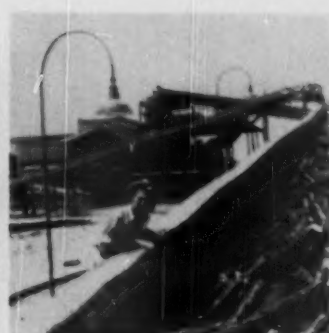
Spent black liquor goes to Goslin-Birmingham long tube vertical evaporators, and evaporated liquor is burned in two B & W soda recovery boilers. The smelt from these units goes to dissolving tanks and is pumped to continuous Dorr causticizing equipment where it is clarified and causticized to produce sulfate



TOP FLOOR OF DIGESTER HOUSE AT NATCHEZ PLANT of International Paper Co. There are eight digesters made of carbon steel by A. O. Smith Corp. and lined with carbon brick by Stebbins Engineering—3460 cu. ft. capacity each, and said to be largest for kraft ever made. Electric Steel Foundry Co. supplied circulation system, special condenser and strainers.



WOOD HANDLING AND PREPARATION for Natchez Mill is visualized in this fine photograph. Two Worthington hydraulic barkers are in background. Chipper plant is next. The three chip silos, in right foreground, were built and tile-lined by Stebbins Engineering Co. and have plate feeders by Link-Belt, who supplied conveyor equipment. Final conveyor in foreground goes to top of digester house.



G. G. BOYD, JR., Superintendent of Woodyard at Natchez, is checking the five-ft. long hardwood logs moving along an escalator conveyor to the Natchez Mill's hydraulic log barkers—first in the South—built for this mill by Worthington Pulp & Machinery. This is first mill using hardwoods for dissolving pulp by kraft process.

cooking liquor. Lime mud from caustic will be reclaimed by burning in a 10½ ft. x 175 ft. rotary Traylor lime kiln lined with Mexico refractories, fired by Coppus fan-mixed gas burner. Flue gases from kiln pass through a lime scrubbing system, for dust collection, to a 150 ft. by 7½ ft. concrete stack with a completely independent full-height brick lining.

The Infilco water treatment facilities, which provide for softening and filtering, will treat about 30,000,000 gallons of water per 24 hours.

For fire protection, Chicago Bridge & Iron Works built a 100,000 gallon, 125 ft. ellipsoidal tank supported by pipe columns. This tank services an automatic sprinkler system. Outside areas are protected by strategically located hose houses. Two 2500 gallon-per-minute pumps, one motor driven and one turbine driven, are connected to the system.

The power plant has two General Electric turbo-generators, one 7500 KW and the other 6000 KW. The electrical generation and distribution is at 4160 volts. The power plant switchgear, transformer

load centers, and high voltage motor control were furnished by Westinghouse Electric and Mfg. Co. with General Electric Co. furnishing the motors and low voltage motor controls.

The boiler room consists of one 150,000 lb./hr. bark burning boiler and one 150,000 lb./hr. gas-fired boiler. Each boiler is identical except that one unit has a Detroit Rotograte stoker under it for the purpose of burning both wood refuse and gas, while the other is for gas fuel only. The wood refuse is furnished to stoker by a Hofft feeding machine from a bark storage bin. Both boilers are designed for an operating pressure of 600 lbs. with various components such as a continuous type loop tube economizers, superheaters and air heaters. The induced draft fans were by American Blower Corp. and the forced draft fans by B. F. Sturtevant. Natural gas from local field is used.

There are two 250-ton Babcock & Wilcox Tomlinson chemical and heat recovery units, equipped with superheaters and economizers, and the steam generated at 600 lbs. per sq. in. is utilized

throughout the mill. The recovery furnace flue gases pass through the Koppers electric Precipitators for removing chemicals and reducing odor, and thence through a 300-ft. brick and concrete chimney, constructed by Rust Engineering Company.

The main office is a two-story, brick, concrete and steel structure. The floors are covered with plastic tile, and the building is completely air-conditioned.

The utility building is a two-story structure of bricks, concrete and steel. Part of the second story is also for offices for department heads, while the supply house uses the balance. The first floor houses the cafeteria, first aid, laboratory, locker and bathrooms, supply house, and maintenance shops.

The mill area, consisting of approximately 540 acres, is fenced with steel cyclone fencing.

Cochrane Reactor Installed at Big Island, Va., Mill

A Cochrane Corp. "Rapid Reactor" was recently installed to treat raw boiler water prior to pressure and filtering at National Container Corp. of Virginia, Big Island, Va.

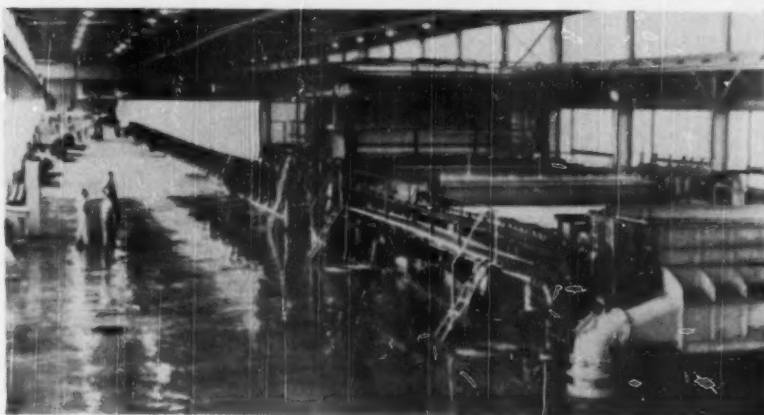
This unit gives promise of materially reducing the silica and alumina content of the boiler water. This will reduce scale in boiler tubes, drums, and turbine blades.

The small amount not removed by the Reactor carries over in the form of large floc particles which are removed at the filters.

This installation is a second step in improving the boiler water supply, following extensive improvements on the storage reservoir made a year ago.

The Reactor is equipped with automatic control devices on flow and chemical feeds. Chemicals are fed by Milton-Roy pumps actuated by timers controlled by a Trident flow meter on the incoming water. Flocculation is by aluminum sulfate aided by activated silicate of soda. Soda ash is fed separately to maintain the optimum pH.

FULL LENGTH VIEW FROM WET END of the new Beloit 220-inch Fourdrinier pulp drying machine showing the 302 ft. long Ross Engineering Corp. air system hood over the five dryer sections. This Ross hood has removable panels. Note low head on the machine.



Design for Better Bleaching...

Sandy Hill—KAMYR

Pulp Bleaching System

Pulp bleaching methods developed by the Scandinavian firm of A/B Kamy and recognized throughout the world for their superiority are available to the American paper makers in the Sandy Hill-KAMYR Pulp Bleaching System.

Kamy attacked the problem of pulp bleaching at a time when direct chlorination first made its appearance on an industrial scale. Until then progress had been by steady but slow evolution, but this process started a period of revolutionary development. Kamy made its start by introducing specially designed circulation pumps. Special Kamy items already in use throughout the pulp industry were ultimately to form part of the KAMYR BLEACHING SYSTEM.

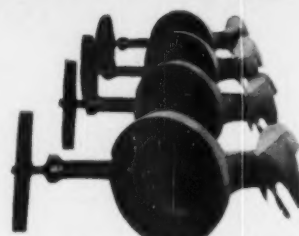
The soundness of Kamy's theories developed and applied during these pioneering days has been proven by their adoption throughout the trade. Kamy's emphasis on separate washing after each treatment, though long scorned, came to be accepted as standard procedure in all modern bleaching. The Kamy vacuum washer meets any demand as to capacity, efficiency and resistance to chemicals.

Kamy's solution for the efficient mixing and absorption of chlorine offers one of its strongest claims of superiority. Installation of a circulation pump at the base of the chlorination tower converts the bottom into a mixing chamber. The inlet and outlet of the pumps are connected tangentially to produce a strong horizontal circulation. The chlorine and pulp are thoroughly mixed. The pulp rises to the top of the tower and flows to the following washer.

Pre-Impregnation Process

The Kamy patented process for pre-impregnation at low density for high density pulp assures excellent impregnation thus producing a more uniform pulp, a higher alpha content and an increased yield. Sandy Hill's staff includes an engineer with more than 20 years world-wide experience in the Kamy organization available for consulting services.

A brochure on the Sandy Hill-KAMYR bleaching process, just off the press, will be sent upon request.



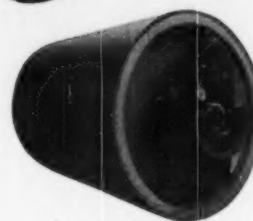
Kamy Circulation Pump—Type CT



Kamy Transport Pumps



Kamy Feed Pumps



Kamy Vacuum Washer



Sandy Hill Iron & Brass Works

Hudson Falls, N. Y.

Machinists and Founders Specializing in Paper and Pulp Mill Machinery

Some Leading Items:
Fourdrinier Paper Machines
Yankee Fourdrinier Machines
Cylinder Paper Machines
Feltless Wet Machines

Bertrams Flow Distributor
Kamy Bleaching Equipment
Stock Pumps
Pulp Grinders
Selective and Corner Drives

Dandy Roll Drives
Quick Opening Gate Valves
Scottell Felt Conditioners
Cleveland Type Bearings
Castings—Iron, Bronze, Aluminum

"Packer" Screens
Shaker Screens
Nelson Slice
Niles Bag Machines
Nilsen Printing Presses

NEW BOARD MILL PLANNED



RAY E. BAKER (left), Longview Manager for the Pulp Div., Weyerhaeuser, announced plans to add third mill for this division at Longview, to make paperboard, and GERALD F. ALCORN (right), appointed Engineer in charge of the new construction. Hugh Wickett succeeded Mr. Alcorn as Kraft Superintendent and George Weyerhaeuser succeeded Mr. Wickett as Shift Superintendent.

Plans for increased kraft paperboard production capacity by the Weyerhaeuser Timber Co. have been announced by R. E. Baker, manager of the Longview plant, Pulp Division, Weyerhaeuser Timber Co.

It is planned to add 175 tons per day paperboard capacity to the Longview kraft mill. Installation of equipment will begin next summer and the increased production achieved during 1952. We recently reported the increased production at Weyerhaeuser's first—and so far, its only board mill—at Springfield, Ore. Kraft containerboard production there has been upped from 150 tons to 250 tons in less than a year. This mill started up in late 1949.

Weyerhaeuser also has a market kraft pulp mill at Longview, which started marketing its quality bleached kraft pulp in January, 1949.

Gerald F. Alcorn, who has been kraft superintendent at Longview, will be the engineer in charge of new kraft addition. Ray E. Baker is manager over both sulfite and kraft units in Longview. Hugh Wickett has succeeded Mr. Alcorn as kraft superintendent at Longview. George Weyerhaeuser, shift chemist in the kraft mill, succeeded Mr. Wickett as shift superintendent.

For the new kraft addition there will be stainless lined digesters built by Chicago Bridge & Iron Co. An additional Babcock & Wilcox recovery furnaces has been ordered, which will bring recovery units there to two for sulfite and two for kraft. Power and recovery are centralized for all Pulp Division units in Longview.

General American Transportation will supply additional evaporators and three new brown stock washers will be furnished by Improved Paper Machinery Co. Traylor will supply a lime kiln. The Dorr causticizing plant will be modified to take care of the expansion.

A new Fourdrinier drying machine will be required along similar lines to the 164-inch machine at Springfield. L. H. Hoffman, Portland, Ore., is contractor.

Pre-logging on Weyerhaeuser Tree

Farms and use of leftovers from the two Weyerhaeuser sawmills at Longview will supply the kraft addition as they do the present kraft pulp mill.

The hydraulic Sarking of sawmill logs in the Lumber Division at Longview has yielded even greater amounts of wood raw material suitable for pulping than had been anticipated, according to Mr. Baker. Expansion of the kraft pulp mill facilities to use this salvaged wood is another forward step in utilization of the raw material thus made available.

Gottesman Co. Moves

Gottesman & Co., Inc., wood pulp and chemical merchants, have leased the entire 35th floor for a long term of years in a new 36-story, fully air-conditioned office building at 100 Park Ave., between 40th and 41st Sts., New York City.



HENRY J. MACKIN (left), newly elected President of new Elk Falls Co., which will build newsprint mill on Vancouver Island, starting up by late 1952, and TOM HARGREAVES (right), who will be Crown Zellerbach's Special Representative on the Construction Project. Crown Z's subsidiary, Pacific Mills, is joined with Mr. Macklin's Canadian Western Lumber Co., one of biggest timber operators in Far West, as partners in sponsoring and backing the new company. British-born Mr. Hargreaves has been Assistant Mgr. of Crown Zellerbach's newsprint mill at Port Angeles, Wash.

HIGH SWEDISH DECORATION BESTOWED ON LOUIS CALDER



Recent events have shown the inevitability of the facts of world cooperation and of pulp as a world commodity, and this was dramatized late in September when a forward-looking industry executive, Louis Calder, for 30 years president of Perkins-Goodwin Co., received from the King of Sweden the highest honor the monarch can bestow on a commoner.

PULP & PAPER's exclusive picture (above) of the ceremony highlighted the vast changes that have taken place in the pulp industry during Mr. Calder's time in it. Left to right: Mr. Calder, Mrs. Calder and Erik Boheman, Swedish ambassador, who made the presentation of the Order of Vasa.

This Swedish honor is "for keen and active interest in strengthening trade relations and fostering good will between the U. S. and Sweden." The ceremony was at the residence of Lennart Nylander, consul general of Sweden in New York, and present were Mr. Calder's family and many friends, as well as Osten Unden, Swedish minister of foreign affairs, and Richard Sandler, former Swedish prime minister.

Not long ago Mr. Calder was tendered a banquet by the Texas Publishers Association and Texas Press Association, at Galveston, for his contribution to newsprint supply and Southern development; this year received from Austin College, the degree of Doctor of Humanities for contributions to the development of the Southwest. An earnest worker in decades that saw tremendous change, his influence has extended into all areas of the North American and foreign pulp and paper industry.

MACHINE TENDER Munchausen Stories

We suspect there is a good deal of truth in this Machinetender Munchausen tale, selected for this corner this month. The author is a Bostonian and they are conservative about their tall tales and prefer at least an authentic base for extravagance in autobiography.



William Bond Wheelwright (shown in picture) the author of this story, was born in New England, attended Harvard and has lived in Boston most of his life. And as a boy he worked in a paper mill.

It was there he learned the basic trades and philosophies before he became an author and writer on this industry and an advertising counsel to this industry and those who serve it. He became an expert on it, and a historian of it.

His various activities include doing advertising media selection and "copy" for Draper Brothers and doing special writing for the Hercules Powder Co.'s periodical "The Paper Maker," one of the finest publications of its kind. Mr. Wheelwright also is the father of a New York publisher, and a notable one.

For this story which follows, PULP & PAPER has sent him \$5. Why not try your hand at writing a tall mill tale for this column?

Mr. Wheelwright's Story:

"This is the story of how the open-toed shoe was first styled in a New England paper mill—at least first after the Egyptians, Romans and Greeks. And as a result, the production and sale of nail polish has more than doubled because of the surface area of the big toe nail as compared with small nail of the index finger.

"As a student of this industry, I had been reading of Brown Co. and how it is still making a laminated paper inner sole which goes into the finest and sturdiest of men's shoes as well as women's scraps of absurdity for the feet.

"This led me by association to contemplate the open-toed shoe or sandal of the modern style. Then I recalled the ugly and formless 'sneakers' which I wore at the time I worked in a paper mill. Any man over 45, say, will remember those oldtime 'sneakers' which were not designed or engineered like any ordinary shoe, they never fitted well and usually were floppy, extending beyond the toe,

and came in just two colors—white, or dirty brown.

"The historical incident I mean to describe occurred when I was working on a supercalender.

"Well, it was 1903, as I recall—I know it was April, and the earthquake had not dropped San Francisco into the Bay just yet—and we were very busy shipping paper to the Golden Gate for Blake, Moffitt & Towne.

"I was sand-papering the top paper roll of the supercalender, sitting on a bouncy plank, working with the sand-paper wrapped around a wooden block, my legs dangling and swinging slightly back and forth over the dents in the surface of the roll.

"I was doubtless humming 'Little Annie Rooney' to myself and keeping time with my right foot. The rolls were at top speed, about 450 R.P.M.

I was startled suddenly, when the toe of my right sneaker caught in the nip of two lower rolls!!

"The traction held it and although I had a strong leg from college rowing, I could not release my foot. I yelled like mad.

"Luckily, I was heard above the rumble of the mill. My helper shut down the stack, barely in time! The end of my right sneaker was gone and my bare toes would have been next to go!

"The effect was unusual, and when I climbed down from my perch, rather shaky and wan, my helper felt I should cut the end off my left sneaker so the pair would match. I did so and thus I created the first open-toed shoes—in Massachusetts, at least.

"There was work to do, and plenty. It took two hours, at least, to scrape the rubber from those calender rolls, and I still felt shaky.

"It was on that day I developed a big bump of caution, and learned a lesson in safety, while accidentally styling the first open-toed shoe, perhaps, of this century."

Chemicals and New Papers

Ralph W. Kumler, American Cyanamid Co., acted as moderator for the first meeting of the Metropolitan group of TAPPI at Fraunces Tavern, New York, recently, and thereby opened the 1950-51 season for the relatively new chapter. W. R. Willets, Titanium Pigments, is chairman of the program committee which arranged a panel discussion of "New Papers from the Use of Chemicals," and lined up the following experts: C. G. Landes, American Cyanamid; T. S. Morse, Hercules Powder; E. K. Stilbert, Dow Chemical; R. H. Walsh, E. I. du Pont.

John Roslund Tells About European Mill Methods

John V. Roslund, Portland, Ore., Pacific Coast manufacturers' representative for Downing-Town Manufacturing Co., Asten-Hill Manufacturing Co., and H. Waterbury & Sons Co., and also well known in the Midwest mills where he used to travel, concluded a 3-month trip recently with Mrs. Roslund to Europe. After visiting Paris, Brussels and Hamburg they settled down for 8 weeks in Sweden, staying some time at Stockholm where Mr. Roslund lived some 25 years ago.

In Europe he visited several pulp and paper mills and says he finds the Swedish mills operate on restricted wood supplies and are manufacturing high quality products, even to the making of shoe boxes out of bleached sulfite because used paper is not available for filler.

He expressed particular interest in the Stora Kopparberg operations at Kvar, Sweden, which he says is the oldest incorporated business of the world in continuous production and is the largest newsprint mill in Sweden. Finding process heat very precious, he says, "I've never seen people look for heat sources as in Sweden." Rosenblad evaporators are used in the Stora Kopparberg plant.

Industry Need Today: Management "Teams"



The rapid growth of an industry, such as the pulp and paper industry, has brought a challenging management problem with it, says Ralph J. Cordiner, (shown in picture), executive vice president of General Electric Company.

Mr. Cordiner points to the continuing need for more management personnel, a phenomenon taking place within an age of specialization and says, "We cannot govern industry today with nothing but a group of specialists at the top unless we are prepared to call a committee meeting every time there is a management decision to be made."

"The solution, Mr. Cordiner states, is "second and third teams . . . of reserve executives, under executive development programs." These are very definitely being developed today by some of the biggest pulp and paper companies.

An executive who came up from door-to-door sales, Mr. Cordiner compares members of modern management with the family doctor. "He knows his business because he has been with it through its labor pains, its growing pains, and in place of measles and mumps—two world wars and a depression." The remedy: Rotated selected specialists on jobs of a different nature; descriptions of managerial jobs; off-the-job training courses.

Fall Meeting Near Philly Draws Many



Superintendents and friends from the Pennsylvania-Delaware division voted the annual fall meeting in Philadelphia environs an outstanding success as Chairman Glen Renegar's (in picture) own company

(Container Corp. of America, at Manayunk) played host at its big board mill and the Superintendents' president, Charles Ackley, Crown Zellerbach at West Linn, Wash., stopped on a wide itinerary to deliver an invitation and plug for the coming national meeting at Portland, Ore.

Social events as well as many sessions were held at the Bala Country Club. A cocktail party and a Saturday breakfast were staged by "P.P.P.," the fast-growing affiliate group whose antics have been living up many a Northeast meet in 1950, with John Diffenderger, Hercules Powder Co., as chairman.

However, deeply serious business was the order of the days, Oct. 6-7, and many hurried out of Cincinnati, where they attended TAPPI's engineering meeting. Elmer Mitchell and Walter Morehouse of NOPCO introduced C. M. Connor, technical director of W. C. Hamilton & Sons, and Romeo Tourangeau, general superintendent, who talked on "Use and Maintenance of Suction Equipment," and Dr. J. S. Buckman, Buckman Laboratories, who lectured on micro-organisms in papermaking felts. Robert Ridings, power engineer at Container, went into details on production power; and Douglas Frommuller, Scott Paper, talked of machine clothing.

Packing Clinic for Michigan Superintendents



J. W. (Bumps) Hemphill (shown in picture), manager pulp and paper industry, Johns-Manville Corp., New York, N. Y., is to stage a packing clinic before the Nov. 16 dinner meeting of the Michigan Division of the Superintendents

Association at the Hotel Harris, Kalamazoo. Mr. Hemphill credits the clinic idea primarily to a pulp mill superintendent who felt much of his maintenance costs and power consumption could be attributed to improper installing and handling of packings in stuffing boxes. Mr. Hemphill volunteered to organize the known data relative to the use and application of packings. He felt that a clinic presentation, where management, engineering and mechanical men could be brought together, would be best.

November 1950

Chuck Wagon Party for National Convention



TWO MORE NATIONAL CHAIRMEN NAMED
R. BURKE MORDEN (left), Vice President, Morden Machines Co., Portland, Ore., who has been appointed Registration and Housing Chairman for the 1951 National Convention of the Superintendents Association, to be held in Multnomah Hotel, Portland, Ore., next June 24-29. His is one of the most difficult jobs of all the chairmen.

MERRILL E. NORWOOD (right), Paper Mills Supt., St. Helens Pulp & Paper Co., St. Helens, Ore., has been named Chairman of Mill Visits, planned for entire day, June 26.

An old-time Western pioneers' type of get-together—a chuck-wagon buffet dinner-dance—will be the first of three dine-and-dance parties scheduled for the big Superintendents' National Convention, to be held for the first time on the Pacific Coast at Portland, Ore., next June 24-28.

The special train from the East will arrive Sunday, June 24; the next day there will be a trip into the tall timber to see Coast logging methods, followed that night by the get-together. Mill visits and golf are down exclusively for Tuesday. Technical sessions will be held Wednesday and Thursday with a dinner dance each night. The Multnomah Hotel facilities are reserved for these events.

Charles E. Ackley, Crown Z superintendent at West Linn, Ore., and national president, was in the East this past month to discuss further plans with national officers. As announced last month, Gus Ostenson, manager of paper manufacturing, Crown Z, Camas, Wash., is general chairman.

A. C. McCorry, St. Regis pulp superintendent, Tacoma, Wash., is technical program chairman; Burke Morden, vice president, Morden Machines Co., Portland, heads registration and housing; Harry Weston, the Superintendents' national secretary, Chicago, and Z. A. Wise, Griffith Rubber Co., Portland, head publicity and travel; H. A. (Gob) Des Marais, General Dyestuff, San Francisco, is reception committee chairman; John M. Fulton, manager, Pacific Coast Supply Co., Portland, chairmans ladies' entertainment; M. E. Norwood, St. Helens superintendent, heads mill visits; R. T. Petrie, Black-Clawson Co., Portland, chairmans local transportation; L. M. Shanahan, Penn Salt, Portland, is golf chairman; R. M. True, General Dyestuff, heads finance; and W. A. Salmonson, Draper Bros., and Herbert Beck, Northwest manager, National Aniline Div., Allied Chem. and Dye, both of Portland, will arrange entertainment.

Printing Paper Panel—First Time in Far West

First full scale printing panel discussion ever held in the Far West—a subject so often featured in Lake States meetings in the past—is scheduled for Camas, Wash., afternoon and evening of Nov. 7.

Ed Nunn, technical supervisor, Crown-Zellerbach Corp., West Linn, Ore., where the first machine coated paper west of the Rockies is now made, is moderator for the meeting, sponsored by Pacific Coast TAPPI.

F. E. Church, assistant production manager of the Time-Life magazine group, will be dinner speaker. "Forty Copies a Second, Every Week" (Time and Life production) will be his subject.

Ink, printing, paper and pulp will have spokesmen at the afternoon session, 2 p.m., in Nora Self Hall. Maurice Adler, of California Ink Co., Berkeley, Calif., on ink problems; Milton Bell, of Abbott, Kerns & Bell, Portland, Ore., on printing problems; Garney Craynor, chief chemist, Oregon Pulp & Paper mill, Salem, Ore., on printing paper quality control, and B. H. Wright of the West Linn mill, on pulp qualities for printing. Donald Knapp, of the technical dept., Crown Z, Camas, is in charge of arrangements.

President Ackley Attends Two Supts.' Meetings

Charles E. Ackley (shown in new picture), president of the American Pulp & Paper Mill Superintendents Association, and paper mill superintendent of Crown Zellerbach Corp., West Linn, Ore., concluded a month's ambassadorial and pleasure trip in late October, accompanied by Mrs. Ackley. Departure on first leg of this national tour was on Sept. 23, leaving for Chicago by automobile where he visited at the association's national headquarters.

The tour included visits at division meetings and at several mills, at some of which Mr. Ackley had previously been employed. At the Oct. 6-7 Philadelphia meeting of Pennsylvania-Delaware-New Jersey division held in Warwick hotel, he appeared as guest speaker at the noon luncheon. A week later he was honored at the Oct. 13-15 joint meeting of Superintendents South and Southeastern divisions at Asheville, S. C.

Among mills he visited were Kalamazoo, Mich., where Mr. Ackley was boss machine tender in 1925-26; Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis.; National Container Corp., Philadelphia; Champion Paper & Fibre Co., Canton, N. C.; and Crossett Paper Mills, Crossett, Ark.



WEST TACOMA MANAGERIAL CHANGES

Left to right—Neil F. Robertson, Mill Mgr.; "Bill" Edwards, Retired Supt.; C. J. Brown, new Supt.—of West Tacoma Mill.



With the recent dissolution of Cellulose Engineers, Inc., Seattle pulp and paper engineering firm, their management contract with West Tacoma Newsprint Co., Steilacoom, Washington, has terminated and operating direction taken over directly by the officers of the company.

Neil F. Robertson continues as mill manager, a position he had held for two years, but now he is a direct employee of the newsprint firm instead of Cellulose Engineers. Herman N. Simpson, former vice president of Cellulose Engineers, has opened his own engineering office in the Central Building, Seattle, and will continue personally as consultant and principal advisory engineer to West Tacoma.

A new appointment at West Tacoma as of Sept. 1 is that of Charles J. Brown, as superintendent, succeeding J. William (Bill) Edwards, who has retired and is living at Lakewood, near the mill.

During this year, production of the West Tacoma mill on a Fucose & Jones 156-inch Fourdrinier machine, has been increased from 1700 to 2000 tons per month, through the greater production of groundwood by the addition in January, 1950, of a fifth Sandy Hill grinder.

Mr. Robertson moved to West Tacoma in Nov., 1946, from Crossett Paper Mills, where he handled pulping research. He became mill manager at West Tacoma Sept. 1, 1948. He formerly had been with Scott Paper Co., Chester, Pa., and Pulp Bleaching Co. when the latter company was based in Kalamazoo.

Mr. Brown was with Crown Zellerbach for 25 years. He started at Camas, Washington, in 1918 and lived many years there. He was boss machinetender at the Port Angeles, Washington, newsprint mill where Mr. Edwards had been superintendent for many years. Mr. Brown joined the West Tacoma staff in Feb., 1947.

Mr. Edwards became superintendent in July, 1946, when reconstruction of the mill began. It started making newsprint in May, 1947, after its conversion from book to newsprint.

Mr. Simpson was former manager of kraft mills of Crown Zellerbach Corp., Port Townsend, Washington, and of Sorg Pulp Company, Port Mellon, B. C.

Ray Hill, who was president of Cellulose Engineers, continues as president of Pulp Bleaching Co. and Chemical Proof Construction, Inc., continuing offices at 71 Columbia Street, Seattle, Wash.

The West Tacoma Newsprint Co. makes newsprint exclusively for its newspaper owners in Los Angeles, San Diego, San Francisco, Modesto, Fresno, Sacramento,

and Oakland, California; Eugene, Oregon; and Tacoma, Olympia, Everett, Bellingham, Yakima and Aberdeen, Washington. It produces only 15% of the owners' total requirements.

Frank S. Baker, president, and George F. Russell, vice president and treasurer of the newsprint firm, are also president and business manager, respectively, of the Tacoma News Tribune, one of the owner-newspapers.

New Top Executives For National Aniline

E. M. Maxwell and D. G. Rogers have been appointed president and executive vice president, respectively, of the National Aniline Division of Allied Chemical & Dye Corp., New York, effective Oct. 1, 1950. Both men have been with the company many years, most recently as vice presidents.

Mr. Maxwell succeeds B. A. Ludwig, dean of the American dyestuff industry, who is retiring after 53 years' service.

WHELOCK PROMOTED TO MANAGER IN LOS ANGELES MILL

On Oct. 1, Harvey M. Brown, (left) resident manager of the Vernon Division (Los Angeles), Fibreboard Products Inc., since 1927, retired and was succeeded by Frank H. Wheelock (middle), who had been assistant resident manager. At the same time, Bruce F. Brown, Jr., (right), was promoted from chief chemist to assistant resident.



Harvey M. Brown became associated in 1912 with his father and two brothers in construction of the Southern Board & Paper Mills in Los Angeles. He was its secretary-treasurer until it was acquired by The Paraffine Companies, Inc., (now PABCO Products, Inc.) in 1917. He was also a stockholder in Crescent Board Mills, which became the Port Angeles Division of Fibreboard in 1927.

Frank H. Wheelock started as a sales order clerk in the Vernon Division in 1930, and after positions in the estimating department and laboratory, he became board mill manager in 1942.

Bruce F. Brown, Jr., started with Fibreboard in 1936, advancing from the mill to purchasing, estimating, and accounting departments. In 1939 he became assistant to Mr. Wheelock in the laboratory, Vernon Division, and three years later he became chief chemist.

Esco Promotes McQuaid; Also Boosts Latimer

JOE E. McQUAID, promoted by Esco, to leave Seattle office.



Joe E. McQuaid, who for 12 years has been closely associated with the Pacific Coast pulp and paper industry in various activities, has been promoted by Electric Steel Foundry Co. of Portland, Ore., to be sales manager of its Contractors' Equipment Division, effective Dec. 1, according to announcement by C. E. Buckner, general sales manager. Esco's and Mr. McQuaid's gain are this industry's loss, as he will head sales of road-building, excavation and mining equipment, such as crushers and various kinds of buckets.

Wilson V. (Bill) Latimer will succeed Mr. McQuaid as Seattle manager for Esco. Pulp and paper is the largest single division of the Seattle business and Mr. McQuaid had been manager since June, 1947, when he succeeded Joe Blake, transferred to Los Angeles as manager. Mr. Latimer followed Mr. McQuaid to Seattle by a few weeks and has been his assistant since then.

Mr. McQuaid was born in Osawatimie, Kans., attended schools in Portland, Ore., and Oregon State College. He worked for Griffith Rubber Co. four years and was with Esco the past 8½ years. He was in San Francisco a couple of years for Esco.

Mr. Latimer, a former high school principal, attended the Universities of California and Washington.

MAKING ~~FOUR~~ LOGS DO THE JOB OF ~~FIVE~~



Developed by the Pulp Division, Weyerhaeuser Timber Company, hydraulic barking at first was used only to de-bark West Coast Hemlock in sulphite pulp making at a saving of as much as 20% in useable pulpwood.

Hydraulic barkers are now used also on sawlogs. By hydraulically de-barking sawlogs, not only is the efficiency of the sawmilling operations improved but bark-free

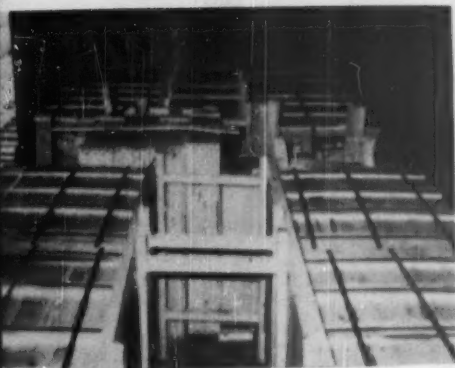
sawmill slabs and edgings can be processed into clean sulphate pulp.

Such integrated sawmill and pulp operations provide for an interchange of material in such a manner that the by-product of one operation becomes the raw material for another.

In this way, Weyerhaeuser assures increased and continuing supplies of wood for the Pulp Division and its customers.



WEYERHAEUSER



INTERIOR VIEW of carload of S. D. Warren paper which went "off the iron" recently and took a terrific slamming around. As can be seen clearly in this view, there was no damage to paper and this was due to proper wooden bracing.

Proper Wood Bracing For Warren Paper Shipment

"Claim prevention" is a big subject with mills like those of S. D. Warren Co., according to Robert L. Travis of their Cumberland Mills, Me., traffic department, and Kendrick Burns, their purchasing agent who brings this specific example to the attention of PULP & PAPER readers in a recent exclusive interview.

"This is a real live case which shows claim prevention works to a miraculous degree," said Mr. Burns. It is also quite a tribute to steel-strapped cases and proper wooden bracing, if the photographic evidence is a criterion.

Recently a car of printing paper was being shipped to Diem-Wing Paper Co., Cincinnati, which contained 16 skids 39 by 54 inches and approximately five feet in height; four cases 25 by 38 inches and four cases 38 by 50 inches. Third from the engine, this car left the rails in Vermont and bounced along the ties for 23 car lengths, then tipped on its side. S. D. Warren traffic men opened that car door expecting, in their own words, "a helluva mess" but there was no paper damage and the bracing of the 16 skids was intact. The four 38 by 50-inch cases had jumped from trig and moved sideways about two feet in the doorway. The paper was loaded into another car and re-shipped next day.

Except for damage to the car the paper would not have needed to be unloaded and loaded again, and railroad men who viewed the results of this proper bracing were unanimous in their statements that they had to see it to believe it, said Mr. Burns.

Here is how S. D. Warren did it: Skids were braced with 16 H center braces composed of 3 by 4-inch hemlock lumber and the center braces tied together with long pieces of 2 by 3-inch lumber, as shown in the accompanying illustration, taken after the car went off the rails and was righted. Western hemlock lumber was used for bracing.

New 4-Screen Speed Classifier Aims to Replace Freeness Tester

James d'A. Clark, research and development engineer, Longview, Wash., has during the post-war period developed a new 4-screen, high-speed classifier which he anticipates will replace freeness testers as a means of controlling stock preparation. He told PULP & PAPER that the 4-screen classifier will make a test measuring pulp quality in but one minute longer than would be required for making a freeness test, with the latter "at best giving highly capricious results, being influenced by many other factors besides beating."

Two or three mills have for nearly 10 years been successfully using Dr. Clark's classifier of previous design for beater control, it is reported. This older instrument takes at least five times as long to separate out the coarse fraction—the per cent of which collects on a 12 or 14-mesh screen serving as the test index.

Mr. Clark currently is working with Thwing-Albert Instrument Co., Philadelphia, Pa., to produce a lower cost, single screen unit for control purposes in place of this 4-screen research model, of which six units have been obtained by pulp mills.

Newport News Agent

The Newport News Shipbuilding and Dry Dock Co. of Newport News, Va., has announced appointment of Whitty Engineering Co., 10 High Street, Boston, as its New England sales representative in the sale of all of the products of that company with the exception of shipbuilding. The Boston concern is headed by W. H. Whitty.

The Newport News company has diversified its output since the end of the war to include production of many other items including paper and pulp mill equipment.

Southern Representative



Wm. H. (Bill) Johnston

William H. (Bill) Johnston, Jr., of F. N. Johnston Co., New Orleans, La., transmission specialists for the past 18 years, has announced that he has improved the line of his company through addition of representation of Philadelphia Gear Co., makers of a complete line of AC and DC paper mill gears for Reliance Electric & Engineering Co. gear motors. These are also used in the lumber and veneer fields. The Johnston company will represent Philadelphia Gear in Louisiana and Mississippi, and along the Gulf coast through Mobile and Pensacola, Fla. The firm also represents Dodge Manufacturing Co. and Reliance Electric & Engineering Co. in the same territory.

Paper Course at Lowell, Mass.

The Boston Paper Trade Association sponsored a summer school course at Lowell Textile Institute's new department of Paper Engineering on "Paper—Its Properties and Uses," attended by 19 men employed in paper and allied industries from eight states. Mill men came from Byron Weston Co., Eastern Corp., Foster Paper Co., and Hollingsworth & Whitney. Visits were made to Champion International pulp and paper mills in Lawrence, Dard Hunter Paper Museum, Wheelwright Div., Mead Corp., Leominster, and the A. & P. Box Co., Lowell.

Hooker Announces Changes

The Hooker Electrochemical Co., Niagara Falls, N. Y., announces organizational changes involving four technical men. Joy E. Beanblossom has been made manager of development, James S. Sconce has been made manager of research, and Dr. Bruno H. Wojcik has been named as assistant to the technical superintendent. In the Sales Development Department, James S. Walker has been appointed as supervisor of technical sales service.

New Crown Z Company

Crown Zellerbach's final major step in expansion of the Western Waxed Paper Co. announced by J. E. Crosby, general manager, will be installation of a complete gumming operation in the newly constructed Los Angeles waxing division.

The "Gummed Tape Division" now becomes the Western Gummed & Coated Products Co., Division of Crown Zellerbach Corp., A. S. Hammond, manager of the Gummed Tape Division at North Portland, Ore., since its inception, is manager of the new company.

O. R. Johnson, assistant manager, is in direct charge of sales and operation of both plants. Headquarters will remain at North Portland.

Offices Are Moved

The administrative-executive headquarters offices of Columbia River Paper Mills and Oregon Pulp & Paper Co., in Portland, Ore., have been moved to the Oregon Life Insurance Building, 1029 S. W. Alder, which was purchased by the paper manufacturers some three years ago. Activities conducted at Portland include general accounting, traffic, purchasing and sales.

Allis-Chalmers Bulletin

Current status of embrittlement, its causes and control, is discussed in a new informational bulletin released by Allis-Chalmers water conditioning department.

The bulletin tells how to distinguish between steam boiler cracks caused by corrosion-fatigue and embrittlement; explains prevailing conditions that cause intercrystalline cracking of boiler metal, and describes recent developments including use of nitrates as efficient embrittlement inhibitors and the use of the embrittlement detector unit.

Copies of this Bulletin 28X7466, are available upon request from Allis-Chalmers Mfg. Co., 995 S. 70th St., Milwaukee, Wis.

A Modern, Streamlined, Mechanical Packaged Unit

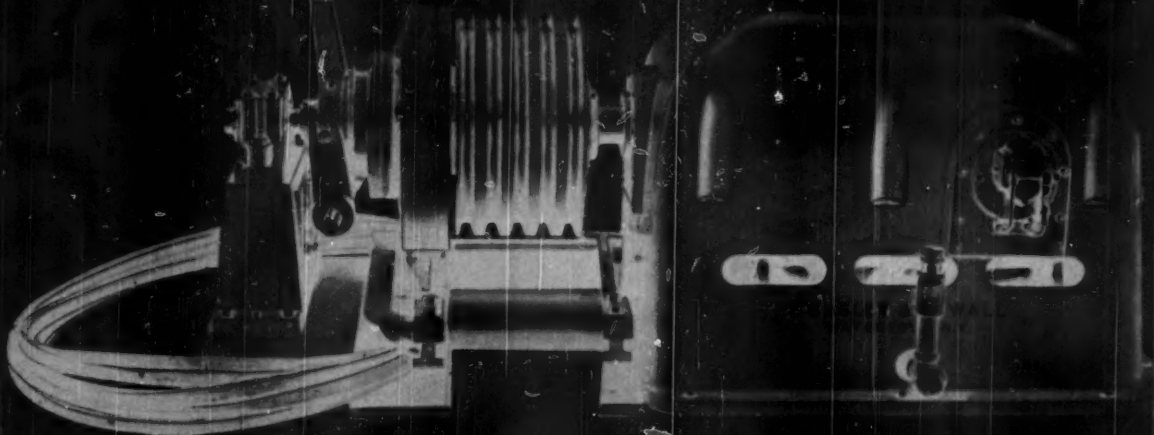
The BAGLEY & SEWALL SIMPLEX DRIVE

This Bagley and Sewall Simplex Drive delivers positive power to your paper machine — gives you positive synchronism between all sectional drives. The speed of the individual units can be varied from 20 to 25 per cent without changing the speed of the prime mover.

It's a rugged, completely self-contained unit with the base an integral part of the Drive. Can be easily installed where the space on the back side of the machine is tight or the distance between indrive points is small. All parts are easy to get at. The case cover is merely a dust and oil cap.

This Drive meets a wide range of machine conditions. Power ratings go from 30 to 225 h.p. with an output-shaft speed range of from 40 to 230 r.p.m.

Write us for more complete information regarding the Simplex Drive.



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NORTHWESTERN SUPTS

Kraft Bleaching Discussed



PHOTOS BY PULP & PAPER at Northwestern Supts. meeting:

Top (l to r): MYLES REIF, Gen. Supt. Blandin Paper Co., who was only now officer elected, starting at bottom of ladder at Secy-Treas.; WALTER SHERMAN, Flambeau Paper, who talked on sulfite liquor road binder; HAROLD SKINNER, Pulp Supt., Marathon, who discussed the Curlator; A. E. JOHNSON, of Curlator Corp., who assisted; and W. A. STONE, Mathieson Chemical, talked on kraft bleaching.

Middle (l to r): MACE HARRIS, Mgr. Pulp Mfg., Northwest Paper, advanced to Chairman; LARRY MURTFELDT, Pulp Supt., Consolidated, Wisconsin Rapids, now 2nd Vice Ch.; JACK HAYES, Appleton Mfg. Co.; CHESTER LARSEN, Corn Products Co.

Lower (l to r): CONRAD COLLIP, Simonds-Worden-White; HARRY WESTON, National Secy. of Supts.; LEO FITZGERALD, Hercules Powder; HAROLD CHEW, Manhattan Rubber; GLEN SUTTON, Supt. Standard Div., Sutherland Paper, Kalamazoo, First V.P. of National Supts.

The Northwestern Superintendents' fall convention, its only meeting in 1950, was successfully held Sept. 15-16, in Milwaukee, Wis., attended by 250, including about 50 wives, and the balance divided between mill personnel and affiliates.

A marker on the site of the first paper mill in Wisconsin, on what is now railroad property at Milwaukee, was unveiled by Fred C. Boyce, first active president of the Superintendents' Association and present trustee, and it was accepted by John Stewart, of the Milwaukee Road. Clark Everest, chairman of the board of Marathon Corp., spoke to more than 100 who braved a gusty day to attend.

Industrial visits were to the plants of A. O. Smith, Allis-Chalmers, Hummel-Dowling, Falk Corp., and Hercules Powder.

Myles Reif, general superintendent of Blandin Paper Co., was elected secretary-

treasurer as the new member of the group of officers of the Northwestern division. Working up the officer ladder, L. W. Murtfeldt, pulp superintendent, Consolidated Water Power & Paper, Wisconsin Rapids, is now second vice chairman. Paul West, Thilmany Pulp & Paper, is first vice chairman, and Mace Harris, Northwest Paper Co. manager of pulp manufacturing, became chairman, succeeding Larry Sabatke, of Marathon Corp., Rothschild, Wis., who headed the group this past year.

W. A. Stone, Mathieson Chemical Corp., discussed kraft pulp bleaching with chlorine and chlorine. He described steps in the processes used at The Northwest Paper Co. and at Nekoosa-Edwards; also many of the results and findings. From the floor various questions were asked. Some wondered about the acid effect on stock pumping equipment. While the

alkaline pulp generally neutralizes the damage of danger to metal parts, some of the users pointed out that they throw in a caustic buffer because the pulp slurry can't fully stop equipment corrosion.

Mace Harris, The Northwest Paper Co., who moderated the meeting, remarked that the difference in certain equipment items in the several mills made it necessary to vary the sequence stages of applying the chemicals.

Curlator at Marathon

Harold Skinner, Marathon pulp mill superintendent, said: "Our management made the very wise choice of buying and installing the first Curlator in this part of the country."

The Curlator was bought for desulfuring the No. 2 sulfite, or "glorified screenings," according to Mr. Skinner's paper. After curling, all the sulfite is No. 1 with a considerable upgrade in price. Mr. Skinner described the actual Curlator process for his audience then, in conclusion, stated, "we actually transform 'glorified screenings' into quality pulp. This pulp may be used for almost any end product we may have in our bleaching and paper-making operation. The Curlator operation is very simple because the machine practically does everything. We use it for pulp refining, but know of many other uses, which may enter into our picture in the near future."

Among the most significant technical developments in the Canadian pulp industry in the past couple of years was the successful initial operation of the Curlator in its application to high yield newsprint sulfite at the Riverbend, Que., mill of Price Brothers & Co. The Curlator makes permanent changes in the shape of pulp fibers by causing nodules of high consistency pulp to roll in changing directions between two surfaces which compress the nodules. The Curlator is manufactured by Curlator Corp., 565 Blossom Road, Rochester, N. Y.



JOHN R. REDGRAVE (left), of 210 North Appleton St., Appleton, Wis., whose appointment as Manager of a new branch office of Mason-Neilan Regulator Co., according to word from James M. McAlear, Mgr. of M-N's Pulp and Paper Mill Dept. in Boston headquarters. Mr. Redgrave is a graduate chem. engineer from U. of Penn. has been covering Wisconsin and Minnesota for Mason-Neilan from their Chicago office.

EUGENE WARD (right), who has been appointed General Sales Manager of Cameron Machine Co., 61 Poplar St., Brooklyn 2, N. Y., relieving President P. J. Lathrop of these duties. Mr. Ward had been Asst. Sales Mgr. since February and has been with Cameron 13 years. Prior to February he was Service Mgr. He attended N. Y. U., Hofstra College and Brooklyn Poly Tech and was an Army Captain in the war in Europe.



Puget Pulp owns or controls vast reserves of timber near Bellingham, and on Vancouver Island. In normal years these reserves are increased more rapidly than they are depleted by logging. Thus, the company is assured of a continuous supply of the raw material from which it processes its wood pulp products and by-products.

PUGET SOUND

PULP & TIMBER COMPANY

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All across the North American continent, north to south and east to west, the industry is improving woodlands technics and introducing large scale conservation, reforestation and mechanization.

RAPID REGENERATION IN WEST

By W. A. Tinney
Forester, West Coast Lumbermen's Association

The public has long been over-sold on the idea that one or more trees should be hand-planted to replace every tree that is harvested. In *Road to Survival, Our Plundered Planet*, and other alarmist books that are having enormous sales, the cry is raised that the country has from 70 to 130 million acres of "stripped" land, "desert" areas of commercial forest land which will have to be planted by hand to become productive.

If this were true the only hope for that acreage would be expenditure of from one to one and one-half billion dollars. Planting seedlings by hand costs real money.

But of course it isn't true. Some of the 75,303,000 acres classified as "Poorly

Stocked or Non-Restocking" may be made productive only through hand-planting. Much of it, if protected from fire, will in time restock through natural processes.

The need is for more accurate yardsticks of knowledge for measuring the restocking requirements of given areas of cut-over lands.

This knowledge is only now in the making. There is overwhelming evidence of the staying and reproducing power of Douglas fir, West Coast hemlock and other species of commercial forests of the West. The evidence stands on millions of acres of second growth. Studies of such regeneration by nature plus seed sources left in logging or by fire are not num-

erous and they are far from exhaustive. (Increasing amounts of Douglas fir are now being used in Pacific Coast mill along with hemlock and spruce.)

The Neah Bay Tree Farm of the Crown Zellerbach Corp., where Herb Willison, of Port Angeles, is forester, offers such a yardstick. It is in 4,860 acres of West Coast hemlock land.

In Jan., 1942, a reproduction survey was made of a 2,500-acre 1937 burn. This inventory showed approximately 1,800 acres fully stocked and only 700 acres of medium stocking.

That is, in five short years three-quarters of the area had, through natural seeding, come up in enough trees to form an adequate new crop.

The remaining 700-acre area of the 2,500-acre burn was planted in two parts, although it was classed as medium stocked in 1942. The plantings were done in 1942 and 1944.

In 1946 a re-inventory showed the entire area fully stocked.

An inventory was taken again in 1949 by Forester Willison of approximately 2,500 acres logged between 1941 to 1946. No fires had occurred on this area and the following stocking was found to exist:

Well stocked with new seedlings, 2,020 acres, cut over 1941-1945.

Medium stocked with new seedlings, 400 acres, cut over between 1944-1946.

Poorly stocked with new seedlings, 60 acres, cut over between 1942-1946.

That is, only 60 acres of the approximately 5,000 acres, or .012% of the total area, has failed to satisfactorily regenerate itself in an eight-year period. Further, it is shown from the surveys as cited that the following degree of stocking was attained in the indicated number of years:

1,800 acres fully stocked in 5 years.
1,060 acres fully stocked in 5 years.
960 acres fully stocked in 8 years.
700 acres medium stocked in 5 yrs.
280 acres medium stocked in 5 yrs.
40 acres poorly stocked in 7 yrs.
20 acres poorly stocked in 3 yrs.

4,860 acres examined.

Under wise selection of seed blocks or strips and good fire defense, such as practiced on the Neah Bay Tree Farm, nature

TYPICAL HEMLOCK REGENERATION IN CROWN ZELLERBACH'S NEAH BAY TREE FARM on the Olympic Peninsula, Washington. A recent survey shows that only 60 acres in this 5000-acre tract have failed to satisfactorily regenerate itself in an eight-year period. The road shown here was formerly a railroad grade. It is being maintained by the company as a protection road.





"This tractor makes money
for me every day..."

... says Ben Fleming, Independent pulpwood producer of Waverly, Ga. His tractor is an International T-6 Crawler and he believes that it—"is the best tractor that ever worked in South Georgia pulpwood. My only repairs in 20 months of operation were turning track pins and bushings."

Your International Industrial Power Distributor can tell you about a host of International owners and operators who are just as enthusiastic about their tractors. Pulpwood producers have learned that you can't beat Internationals for more production with

low fuel and maintenance costs. And Internationals are designed to handle the toughest pulpwood tasks and deliver profitable production for their owners.

If you are not already an International user, visit your nearest Distributor and let him show you the reasons why your best buy is an International tractor for pulpwood work. You'll find Internationals will "make money for you every day" for a long time to come.

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can do most of the job quite quickly and very cheaply. The present restocking on the 4,860 acres represents, in terms of planting at \$18 an acre, an investment in excess of \$87,000.

Assuming an average 5-year natural regeneration or waiting period for hemlock over a 70-year rotation, it would mean in simple language that for a period of 5 years the ground for all practical purposes would be considered non-productive. Assuming an average 500 bd. ft. mean annual net growth, this 5-year waiting period on 4,860 acres represents approximately 12,000,000 bd. ft. of growth, or approximately \$70,000 in present stumpage values for second-growth West Coast hemlock.

Since administrative and protective costs are the same whether the area is planted or not, the \$70,000 lost in growth is offset by the \$87,000 planting costs carried for 70 years at 3% compound interests, or a total in excess of \$250,000. Stumpage values therefore at time of harvest would have to exceed \$20.00 per M in order to break even on the investment.

This might not mean anything, if taken from public treasury. But it means a great deal in the operation of private business.

Where good seed years occur on an average of about once in five years for Douglas fir, it is possible that under certain conditions planting following logging is a wise financial investment to make. In the main, however, it is generally agreed among field foresters that whenever possible, artificial planting or seeding should be used only as a last resort.

In the case of West Coast hemlock we know that this tree produces a seed crop much more frequently and consistently than does Douglas fir. Instead of the eight-to-ten-year period accepted for Douglas fir, on the average, to come from a non-stocked to an adequately stocked condition following logging, it is generally conceded that the regeneration period for West Coast hemlock under ideal conditions is much shorter.

How much shorter is not yet known. More studies of the kind conducted by Crown Zellerbach's Forester Willison, on the Neah Bay Tree Farm, will lead to enlightenment.

Forestry Meeting in West

The 41st annual session of Western Forestry & Conservation Association, to be held Dec. 6-8, with convention headquarters at Sir Francis Drake Hotel, San Francisco, Cal., will feature a comprehensive forestry program developed around the theme of managed conservation, it has been announced by Stuart Moir, forest counsel of the association.

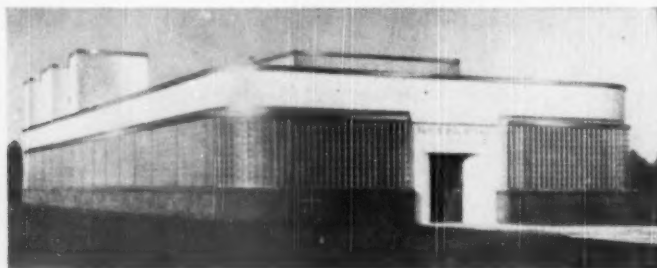
General plans call for specific coverage of main sections consisting of growing forests, protecting forests, harvesting the forest crop, and the business of forestry. Special consideration will also be given to the most effective use of radio and aircraft in the field of forest management.

Several representatives of the pulp and paper industry are scheduled for participation in the program, including men from Crown Zellerbach Corp., Powell River Paper Co., Weyerhaeuser Timber Co., Canadian Western Lumber Co., and others. Subjects pertaining to pulp and paper include discussion of the new Dominion Forest Act, Farm Woodlot Licensing in British Columbia, Forestry as a Business in Pulp and Paper Industry, and others.

Dean of Stockholm School Visits North American Mills

A visitor to the U.S. and Canada is Prof. Thorsten Streyffert, dean of the Royal School of Forestry, Stockholm, Sweden, in America primarily to investigate the pulp and paper industry. He visited a number of operations in Eastern Canada and the Lake States, then came into the Pacific Northwest and will conclude his trip in the South. He is particularly interested in observing new pulp and paper mills, new processes and methods.

Prof. Streyffert in 1920 spent six months taking special courses at the College of Forestry, University of Washington, Seattle and later worked in the mills and camps. He also spent another year in the Lake States and South. In 1934 he again visited America. Meanwhile he spent much time in Russia and other forest regions. He is author of many forest industry publications.



McCulloch Research Laboratory

Completion of new research facilities (shown in picture) as part of a continuing expansion program, is announced by Robert P. McCulloch, president of McCulloch Motors Corp. of Los Angeles, mass producers of light-weight chain saws, pumps, and other engine-powered equipment. The new building was constructed to allow even greater scope to the company's policy of applying modern scientific methods for product improvement.



— MEETINGS —

American Pulpwood Assn., Southwest Tech. Committee, Monroe, La.—Nov. 1-2.

Western Forestry & Conservation Assn., Sir Francis Drake Hotel, San Francisco—Dec. 6-8.

Society of American Foresters—Golden Anniversary Meeting—Mayflower Hotel, Washington, D.C.—Dec. 13-16.

Forest Products Research Society Annual Meeting and Show—Convention Hall, Philadelphia—May 7-11.

A. K. DEXTER, Forester in charge of Centon, Miss., timberlands of International Paper Co. left Sept. 24 on a 90-day leave to serve as Forest Consultant to the staff of General McArthur, in Tokyo. He is a forestry graduate from Montana U., 1922. Joe Kircher of the U.S. Forest Service, in the South, also went to Japan.



Brown Company Gets National Forest Timber

A timber sale recently concluded by the White Mountain National Forest in the Wild River section of New Hampshire was made to the Nadeau Lumber Co. of Berlin, N. H. It is unique in that it was a sale of ten years' duration, providing for a cut of 5,000 cords per year.

The contract provides an opportunity to review stumpage prices every three years and was made in this manner in order to provide a long-term operating program for the area.

Approximately 75% of the timber removed will be sold to Brown Company as pulpwood, the balance being operated for high-grade hard and softwood logs.

Quebec Forester's Views On Some Problems

The James MacLaren Co., operating pulp and paper mills at Buckingham and Masson in Quebec with a daily newsprint capacity of 350 tons, is engaged in a reforestation program involving the planting of at least 50,000 trees annually.

Present operations consist of salvaging timber in diseased, insect-infested, burned and windfallen stands and of cutting mature and over-mature stands in such a way that natural regeneration will be encouraged, according to the company's forester, J. B. Springer.

Present cutting methods, according to Mr. Springer, tend to promote an increase in balsam instead of spruce, the latter being the more desirable species in Ontario and Quebec.

The MacLaren Co. forester hopes that the Quebec government and the industry will reach a more satisfactory agreement relating to security of tenure.

At MANDO
American DiesElectric*
Locomotive Cranes

**"Do twice the
work at half
the cost!"**

They think in big figures, at Minnesota and Ontario Paper Company. When they proved to themselves that American 40-Ton DiesElectric Locomotive Cranes cut fuel costs in half, and doubled work output per crane, they saw big savings involved.

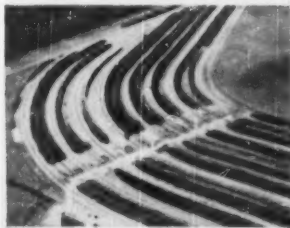
As a result, Mando is now replacing all steam cranes with swift, efficient American DiesElectrics . . . one for two. Each of the new machines handles about 30 carloads of wood on an 8-hour shift. One man runs each crane. There is no time out for steaming up, or for coal or water stops.

Do these figures make yours look out of date? Mail the coupon below, for facts on modern material handling.

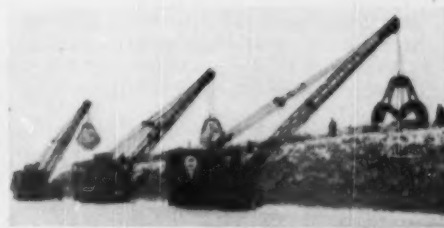
*Diesel-Electric Locomotive Crane Patent No. 2083460.
Teach Control Patent No. 2370836.



FAST AND VERSATILE, these cranes handle car switching and many other jobs. This one is installing a 30-ton turbo-generator.



280,000 CORDS of pulpwood in the world's largest pulpwood storage facility. Mile-long yard contains 42 storage racks, 20 feet high, served by both truck and rail cars.



THREE DO THE WORK OF SIX! The American 40-Ton DiesElectric shown here are doing work of six steam cranes. Each "hole" moves about three tons of wood. The 50 and 55 foot booms make a simple task of piling the pulpwood to a height of 20 feet.

**American Hoist
& DERRICK COMPANY**
St. Paul 1, Minnesota

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Cranes _____ tons capacity.

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new **CARCO "S"** winch



**lets
your
small
tractor
do
big
jobs!**

Now you can really pull, hoist, and skid with light tractors!

Many loggers are now using small "S" winch-equipped wheel and crawler tractors for ground skidding logs usually handled by heavier, more expensive equipment. An "S" winch on tractors from 15 to 30 h.p. has a line pull to 8,500 pounds—double and sometimes triple its tractor's drawbar pull. That's plenty of power to handle most pine, pole, or furniture wood logs over the bad spots from stump to landing.

The "S" winch is the youngest and smallest of the famous Carco line of winches. Proven dependable, hundreds are now used in pre-logging and re-logging, in land clearing, and in construction work.

Ask your tractor dealer about equipment and opportunities for small tractors to do big jobs. Ask about the plus features of the Carco "S" winch—



PACIFIC CAR AND FOUNDRY COMPANY

RENTON, WASHINGTON U.S.A.
BRANCHES: PORTLAND, OREGON · FRANKLIN PARK, ILLINOIS

Send free literature on Carco "S" Winch to:

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- ★ Multiple disc friction clutch provides smooth winching.
- ★ Self-energizing brake is positive, easy to operate—allows for inching a load down slowly.
- ★ Oversize ball and roller bearings, oil bath lubrication, one-piece Carcometal case guarantee long life.

Send coupon for facts today!

MODERN WOOD PLANT FOR INLAND EMPIRE PAPER CO.



A NEW AIR VIEW of Inland Empire Paper Co., seven miles east of Spokane, Wash. It lists capacities of 30 tons sulfite pulp, 138 tons groundwood, and 100 tons of bond, ledger, poster, Fibrotint, B publication, newsprint, wrapping, building paper and other papers (24 hours).

A modern wood preparation plant, built of concrete and steel, and skillfully and efficiently laid out for minimum movement and handling, is an important new addition to the 39-year old Inland Empire Paper Co., on the eastern outskirts of Spokane, Wash.

Hydraulic log barking and whole log chipping are features of this new plant, which is a far cry from the old type wooden structure wood plant with their wood-wasting and labor-wasting processes, still to be seen in too many mills. It is of some significance because it confirms an opinion now held by many engineers that the greatest opportunities for increasing plant efficiencies today is in the wood-room—and that the benefits of hydraulic barking, whole log chipping and push-button wood handling are not to be realized in only limited areas of the continent, or for only limited sizes or species of wood.

Inland Empire is almost 400 miles east of the nearest big Pacific Coast mills of the Western Hemlock-Douglas fir wood belt which pioneered hydraulic barking on this continent and which—because of giant tree sizes and large tonnages—were widely regarded for a long time as the only mills that would be interested in hydraulic barking and whole log chipping. It is now clear that the need for them was only more urgent in degree—they could make such great savings in trees and investment.

But now hydraulic barking has invaded the South in the new International Paper Co. hardwood pulp plant at Natchez, Miss., and in a sawmill at Onward, Miss. Frank O. White, now retired chief engineer, designed a special large hydraulic barker for the Bathurst mill in far Eastern Canada, and, of course, there are small hydraulic Allis-Chalmers "streambarkers" in over 100 eastern mills.

Average Size of Wood

Inland Empire Paper Co. is 7 miles east of Spokane—just 12 miles farther east is

the Idaho-Washington line—and up to now it has been the only paper mill in the vast and richly endowed Inland Empire of the Far West. It draws wood by rail and truck from up to 200 miles from the mill—most from the east as far as the Continental Divide in Montana, and from the North to Canada. The species are predominantly white fir, western hemlock and Engelmann's spruce, and diameter, 16-ft. logs average 20 in. at the base. Within a year, however, Inland Empire's exclusiveness in this region ends, as the Potlatch Forests, Inc., kraft mill starts up 112 miles to the South, in Lewiston, and it, too, plans modern hydraulic barking.

This wood is small compared with that on the Coastal slopes and Inland Empire's capacity for 100 tons paper production per day classes it as a small mill compared with its neighbors to the west. But despite these factors and also, despite the fact that about half of its wood must be reduced to go to grinders (the other half goes to the two 9-ton 15x40-ft. high digesters), the new wood plant:



A. W. WITHERSPOON, pioneer attorney and banker of Spokane, Wash., is President of Inland Empire Paper Co.

1. Saves about 10% of former wood usage.
2. Saves about half the labor required in the old wood room.

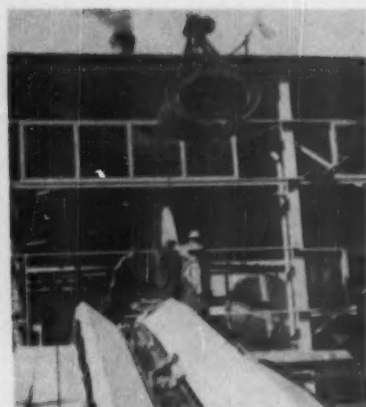
Layout of Wood Plant

W. H. "Hub" Rambo, industrial plant engineer of Portland, Ore., who specializes in saw mills and pulp mill wood rooms, designed the layout for the Inland Empire mill, in collaboration with the mill staff. Briefly, the upper deck rectangular layout provides that, from the top of log haul, all logs go to a trunnion-type hydraulic barker; then can go to either a chipper or to a splitter (if the log is too large for the 20-inch mouth of the chipper). Split logs then may be routed either to grinders or back to chipper.

The new wood plant replaces an old one, whose old equipment is to be disposed of. Work on the new one began in the fall of 1948 and it was finished and operating last November. The general plan was decided upon by President A. W. Witherspoon, Vice President and General Manager C. A. Buckland and Mill Manager Myron Black after Mr. Black had visited a number of the new hydraulic barking plants and observed latest improvements.

Clifton Applegate Co. of Spokane were general contractors and steel fabrication was done by Isaacson Iron Works of Seattle. Robertson Protected Metal asbestos-asphalt-corrugated iron sheets, now featuring a number of new wood plants on the Pacific Coast, provided sidings for the new building. The plant has a built-up Johns-Manville roof.

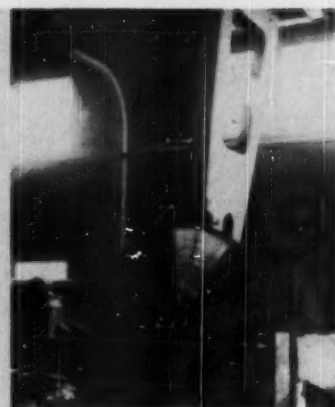
Electric Steel Foundry Co., of Portland, Ore., provided manganese chain and cast steel chairs for the modern all-steel log haul and high capacity steel flights and chain for chip conveying. Seattle Chain Co. also provided chain and general transmission was by Union Iron Works of Spokane. A large number of reduction drive units from Western Gear Works of



VIEWS IN INLAND EMPIRE'S NEW WOOD ROOM: LINK-BELT GRAPPLE (above) handles logs in and out of yard and below it is ISAACSON IRON WORKS' all-steel log haul with ELECTRIC STEEL FOUNDRY chain and flights.



ANOTHER VIEW FROM TOP OF LOG HAUL. It was designed by "HUB" RAMBO, Portland, Ore., specialist in wood rooms. Esso chain is manganese and chairs cast steel.



SUMNER IRON WORKS provided this 90-inch swing saw unit at top of the log haul, which is provided with a Simonds Saw & Steel Co. 150-tooth saw.

Seattle, of varying reduction ratios, are used throughout the plant and where new motors were used, with them, all are G.E. Hewitt Rubber Co. provided belting for chips.

At top of log haul is a Sumner Iron Works (Everett, Wash.) 90-inch swing saw unit using a Simonds (150-tooth) saw, for cross-cutting long logs. The Worthington Hydrobarker takes logs 60 inches in diameter and up to 22 ft. long. They are cradled and revolved on two sets of toothed trunnions on two shafts. A single nozzle, in a perpendicular position over the log, moves lengthwise above the revolving log. It may be raised or lowered for maximum efficiency, in relation to the diameter of the log. The jet may be turned at right angles so that the action of the water can be that of either "cutting" or "peeling," as desired. And, of course, the intricate electrical controls permit moving the jet and revolving the log at varying speeds, and a log may be barked more than once if the bark is tough.

A Worthington 500 gals. per minute, 6-stage pump, driven by a 500 hp. synchronous Electric Machinery motor, provides water at 1,250 lbs. per sq. in. at the nozzle. The barker, except for variation in size and minor detail, is the same as the one recently installed at the Spaulding Pulp & Paper Co. in Newberg, Ore., but the entire wood plant is radically different from the layout at Spaulding.

There is another Sumner 90-inch swing saw unit ahead of the splitter to reduce logs to 4 ft. long for the 4-ft. Western Machinery Co. air-operated splitter. Wood from here that goes to the grinders goes to a 42-inch slasher saw. There are 14 grinders at Inland Empire, but generally from 9 to 12 of them supply needs for groundwood. As we stated previously, wood from the splitter, if desired, may also be routed back to the chipper.

The 110-inch whole log chipper is a



C. A. BUCKLAND (left), a former Appleton, Wis., paper mill boy, is Vice President and General Manager of Inland Empire, and **WILLIAM W. WITHER-SPOON** (right), Spokane attorney, is Secretary-Treasurer.



MYRON W. BLACK (left), Indiana-born Mill-Manager at Spokane, has traveled widely to other mills and meetings; is known throughout industry.



JOSEPH H. BUTLER, JR. (right), Assistant General Manager and coordinator of sales and production, hails from Erie, Pa., where his father was Hamm-mill's Beater Boss, a job he later held in Spokane.

rebuilt Swedish chipper and purchased from the Soundview Pulp & Paper Company at Everett, Wash., where it was formerly operated. The chipper foundation is so constructed that the formerly flat spout is now set on an angle. In setting in such a way the round logs are held into the corner anvils by gravity as well as the knife action. The chipper can take entire logs 20 inches in diameter, up to 22

ft. long, thereby saving much wood formerly lost in saw kerf in breakdown of pieces.

The wood plant is now operated on the one shift by 15 employees.

A new shaker chip screen and new hog were supplied for the new wood plant by Sumner Iron Works. An Allis-Chalmers low-head vibrating screen for the waste water from the barker removes fine wood particles for burning and thus keeps fibers out of the Spokane River.

Mr. Clifford Stupfel of the W. H. Rambo staff was project engineer on the job.

Other New Equipment

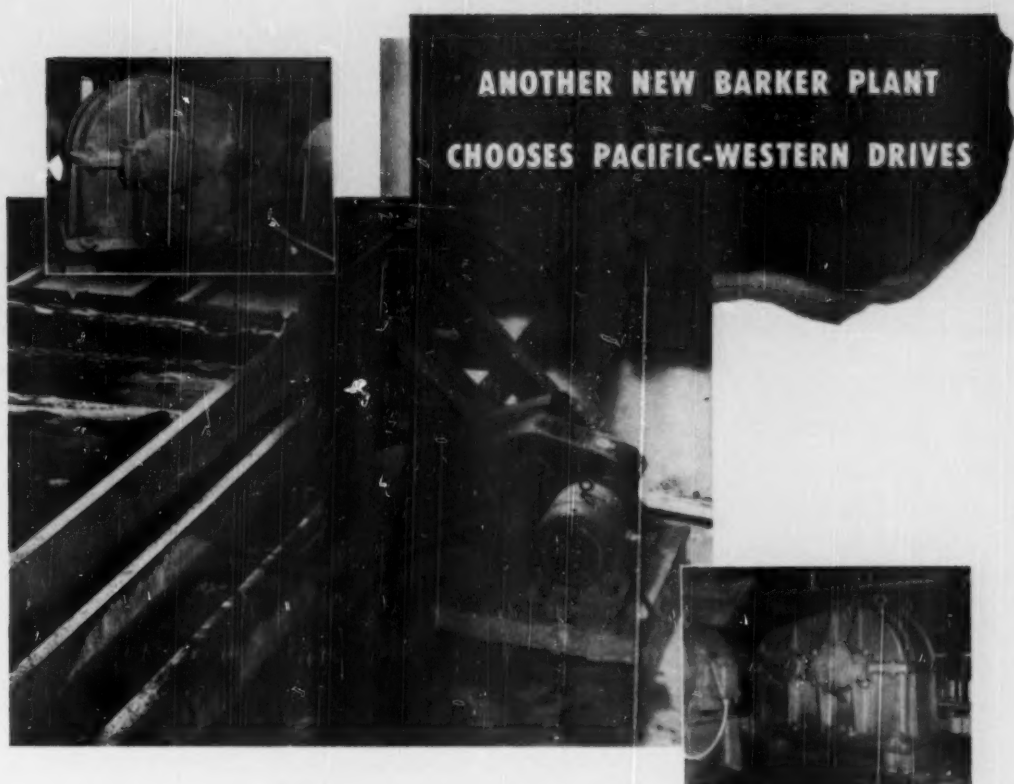
The new wood room is not the only new equipment observed by PULP & PAPER on a recent visit there. General Superintendent Jerome Janecek was pleased to show a new 10-roll 154-inch Beloit calender stack on the largest of the three Inland Empire paper machines. It replaced an old ten-roll stack. The new one has all SKF anti-friction bearings; Lodging Engineering doctors on all rolls; a bottom oscillating doctor and all flexible blades, and an electrical hoist. Each or all the rolls above the king roll can be raised in about 30 seconds, said Mr. Janecek.

This 156-inch machine makes news, laminating, drawing and book paper.

A Bird Machine Co. Jonsson knotter screen, installed ahead of fine screens in the sulfite mill, comprises another important new addition at Inland Empire.

History and Personnel

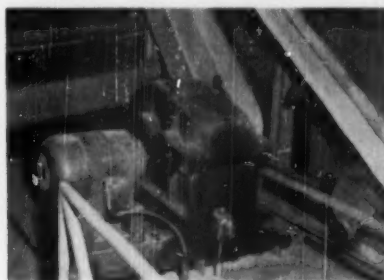
The Inland Empire Paper Co. was built in 1911 and among the principal initiators of the new enterprise men of prominence in the highly progressive Wisconsin pulp and paper industry were: the late John McNaughton of the old Patten Paper Co., of Appleton, Wis.; the late Judson Rosebush, his son-in-law; the late L. M. Alexander, former president of Nekoosa-Edwards, and father of John E. Alexander, his successor, and the late W. A. Brazeau, uncle of the late G. S. Brazeau, who was



WHEN Inland Empire Paper Company planned a new hydraulic barker plant at Millwood, Washington, skilled Pacific-Western application engineers were called in to provide the driving units. Backed by more than fifty years of service to the paper industry, Pacific-Western experts have long been accustomed to participation in both the design and manufacture of complete barker mechanical equipment. Their recommendations assured the proper selection of drives to meet the individual requirements of this customer.

Dependability of Pacific-Western installations is easily proved by the fact that every major hydraulic barker plant in the Pacific Northwest is equipped with Pacific-Western drives. For power transmission requirements in your own plant, specify Pacific-Western and be sure.

A Pacific-Western D-58 speed reducer (top) is used on the first section of the log-haul drive at the new barker plant of Inland Empire Paper Company. In the large photo the second section of the log-haul is driven by a 5 h.p. motor through a Pacific-Western D-52 speed reducer. The log deck transfer to barker (above) is driven through another Pacific-Western D-58 speed reducer, 60-1 reduction, by a 15 h.p. motor.



Typical of twenty-five other Pacific-Western units in this barker plant, the flight conveyor under chipper is driven through a D-58 speed reducer.

WESTERN GEAR WORKS

Manufacturers of PACIFIC-WESTERN Gear Products

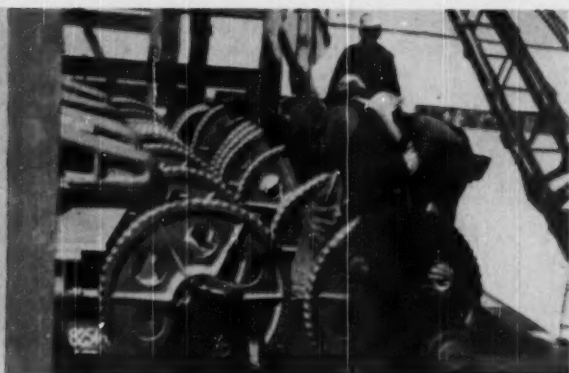
Pacific Gear & Tool Works

Seattle
 San Francisco
 Los Angeles
 Portland
 Denver
 Houston
 Minneapolis, St. C.





MORE VIEWS AT INLAND EMPIRE:
SWEDISH-MAKE CHIPPER at bottom of this chute has 22-inch spout. This is about a 16-in. log dropping down.



LOGS TO BE BARKED are cradled and turned by these toothed wheels—24 of them,—30 in. in diameter, by LAMB-GRAYS HARBOR CO.

mill manager at Everett, Wash for Weyerhaeuser.

A. W. Witherspoon, a pioneer attorney and banker of the Spokane country, has been the president of the paper company for many years. Now in his 70's but still active in major affairs of the region, he has, however, slightly tapered off his many activities, having retired Jan. 1 as president of the Old National Bank of Spokane, but carries on as its chairman.

His son, William W. Witherspoon, an attorney now in the same law firm with his father, is secretary-treasurer of the paper company. He is a law graduate of the '30's from the University of Washington.

C. A. Buckland, vice president and general manager, is the top resident executive at the mill, where he came to work when it started up in 1911, from Appleton, where he had attended Lawrence Col-

lege and worked as a boy in the paper mills of Wisconsin.

Myron W. Black, a University of Washington chemical engineering graduate of 1922, is mill manager and technical director. He was born in Oakland City, Ind., and lived as a boy in Washington, Ind., but his first job as a boy was at the Inland Empire mill back in 1914. After obtaining his college degree, he worked a year at the big Crown Z mill in Camas, and in 1923 returned home to join the staff of the mill near Spokane. Almost from the first he was technical director, but his duties have multiplied since.

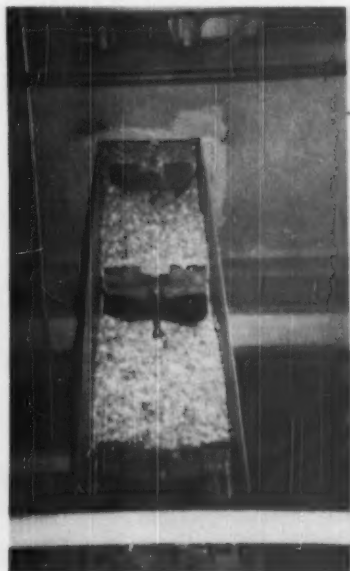
Joseph H. Butler, Jr., is assistant general manager, whose duties are coordination of sales and production. Mr. Butler went to Millwood in 1920 from Erie, Pa., with his father, who had been beater boss in the Hammermill Paper Co. there, and

he was accepting a similar position at Millwood. Young Joe went to work in the mill. His father has returned to Erie and old friends there to live in retirement.

Another important member of the team of younger executives is L. Robert Bennett, who is the sales manager. He resides in Spokane. He started working in the mill in the early 1920's and his first position was in the laboratory. S. R. Whiting has been California sales representative for 17 years.

Jerome L. Janacek, a veteran superintendent who spent many years in Middle-west and Eastern mills, has been the general superintendent at Millwood since 1936. He formerly was at Cherry River Paper Co., now an extinct mill of West Virginia, where many sulfite men had their early training. He was superintendent at Peshtigo, Wis., years ago, and has

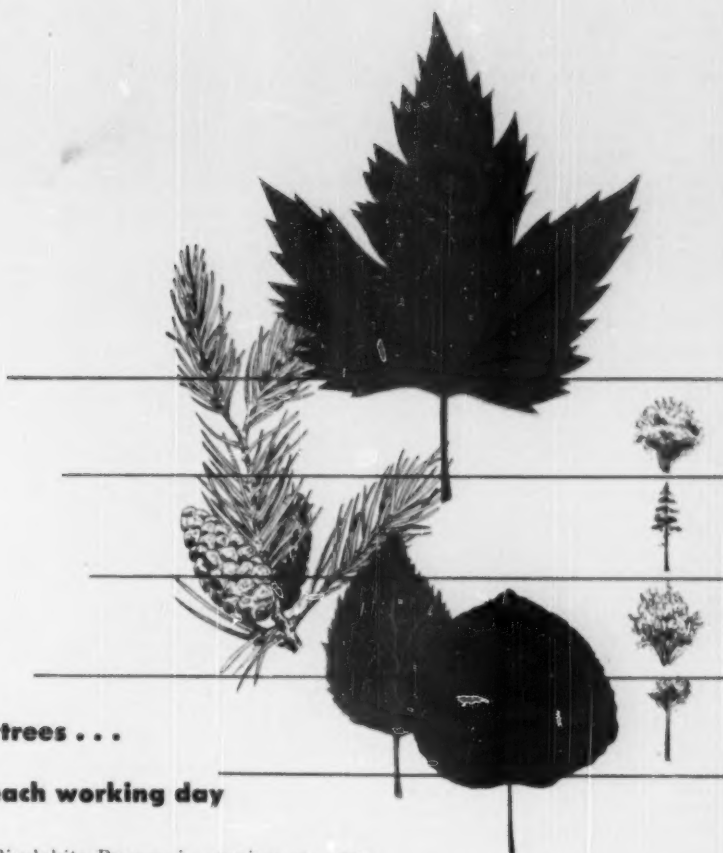
MORE VIEWS AT INLAND EMPIRE:
ELECTRIC STEEL FOUNDRY'S chip rights and SEATTLE CHAIN CO.'s chain here carry 25 cords in form of chips, as shown here, in an hour.



HERE'S OPERATOR'S GLASS-ENCLOSED booth for push-button operation of the hydraulic log barker at Inland Empire.



THE NOZZLE, 1,250 PSI. WATER PRESSURE, is perpendicular to log but plane of jet can be turned to 90 degrees if desired, for Worthington barker.



Pulp from more trees . . .

More pulp each working day

The Ammonium Bisulphite Process is opening up new sources of pulpwood supply. Now you can manufacture pulp from a wider variety of woods than ever before. This is possible because of the more rapid penetration of ammonia-base liquor in pulping. And quick penetration also permits either shorter cooking time for increased daily production or reduced steam requirements.

But there are other equally sound reasons why you should consider conversion now to the Ammonium Bisulphite Process:

1. *Low-Cost Change-Over.* At a comparatively small cost, your present equipment can be converted to ammonia-base cooking.
2. *Profitable Heat Recovery.* Concentrated liquors from the Ammonium Bisulphite Process may furnish a mill's entire heat requirement for evaporation and cooking.
3. *Reduced Labor Time.* One ton of ammonia does the base job of three tons of limestone, and just one man (instead of three to six) can handle ammonia unloading and its conversion into solution. It's as simple as turning a valve!
4. *Lower Maintenance Cost.* Ammonia-base cooking prevents scaling on strainers, blow nozzles, indirect heaters and blowpit bottoms, and it reduces wear on pumps. Sludge and scale formation in acid towers is eliminated.

Spencer Chemical Company, one of America's leading producers of ammonia, suggests you consider the many advantages of the Ammonium Bisulphite Process. If you want further information about ammonia and its new place in the wood pulp industry, contact Spencer's Technical Services Department. Your request will be answered promptly.



SPENCER CHEMICAL COMPANY

Executive and Sales Offices: Dwight Bldg., Kansas City 6, Mo.
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 Henderson, Ky.; Charlestown, Ind.

been at Ontonogan, Mich., Rothschild, Wis., Kalamazoo, Mich., Powell River, B. C., and Camas, Wash.

Dean Banta is the 38-year-old purchasing agent of the Millwood operations. His father, H. C. Banta, went west from Munising, Mich., where he had been cook in the sulfite mill under the late David Davies, pioneer manager of the market sulfite pulp industry on the Pacific Coast, at Shelton, Wash. The elder Banta moved to Millwood when the mill was built to be acid maker and later sulfite superintendent. Dean was born in Millwood.

Hardy J. Forkner is assistant general superintendent, and all of his career has been at Millwood, where he started working in 1918.

Evans Joins Olin; Harvid Co. Purchased



Early in October, as new kinds of mobilization agencies were taking shape in the nation's capital, a "graduate" of the pulp and paper division of WPB in World War II, Robert H. Evans (shown in picture) of Larchmont, N. Y., became executive assistant to the president of Olin Industries, Inc., and its executive committee.

The announcement was by President John M. Olin, whose company is among the largest producers of strategic products which this year embraced cellophane under duPont license.

Mr. Evans, at 38 one of the youngest top executives in the industry, stepped to Olin Industries from three positions in Riegel Paper Corp. As secretary, and treasurer, and board member.

It was direct from WPB in 1945 that Mr. Evans went to Riegel, after having become, in three years time, chief of pulp allocation in WPB. The same swift but quiet rise was repeated in the Riegel organization. Mr. Evans' previous non-government capacity had been in the investment department of the Fiduciary Trust Co. of New York, where he was no stranger to pulp and paper financial activities. But it was during his war years he started his reputation as one of the best informed pulp market men in the business.

Although Olin's products are notably cellophane, arms and ammunition, brass, industrial explosives, and others probably to come, Mr. Evans will still be identified with this industry, because to aid in its cellophane project, Olin Industries this year purchased Ecusta Paper Corp. at Pisgah Forest, N. C., widely known manufacturers of cigaret and air mail papers.

Mr. Evans' new duties took effect Oct. 2. His location is at the New York office of Olin, 570 Lexington Ave. He is a graduate of Columbia University, a Phi Beta Kappa, took post-graduate work in business administration at New York University, is married, has two young children.



J. L. JANECEK (left), General Superintendent at Inland Empire, was former Superintendent in Michigan Wisconsin and other mills.



HARDY J. FORKNER (right), Assistant General Superintendent, spent all his career at Inland Empire.

A serious student still, Mr. Evans is a self-interested expert on Guatemala and South America, has made several business trips to both areas and has a number of friends in the paper industry in Latin America.

The Riegel organization, accepting his resignation with regret, announced its new treasurer is German H. H. Emory, president of Riegel Textile Corp.; F. S. Leinbach became secretary; and R. L. Kerridge who is manager of the Upper Mills will fill the vacated spot in the director's board.

Just a week after Mr. Evans joined Olin there came first evidence that the Alton, Ill., organization is still strengthening its hand in the packaging field. On Oct. 9 it purchased a substantial interest in the Harwid Co., Cambridge, Mass., maker of polyethylene film, the new (see page 46, Oct. issue) coating which in the paper industry has risen in one year from production and sales of 15 million pounds to 50 million in 1949. There is to be no change in the Harwid management or sales distribution. Olin's interest in polyethylene was characterized as "complementing its sale of cellophane" which may indicate that Olin plans to sell the film with the Harwid organization rather than use it on laminates made at its subsidiary, Ecusta Paper Corp.

Canadian Industry Stands To Lose on Free Dollar

Canada's pulp and paper industry stood to lose heavily as an early result of the Canadian government's decision to free the dollar from its arbitrary pegging at a 10% discount in relation to U. S. currency.

However, a \$10 boost in the newsprint price may quickly change the picture—or modify it.

Powell River Co., Vancouver, B. C., increased its price for newsprint Oct. 16 from \$100 a ton to \$110 a ton (New York base), and it was considered probable that several other Canadian newsprint producers would follow suit.

The Canadian dollar was permitted to find its own level as from Oct. 2 and it is still too early to estimate the value at which it will be stabilized for the long term in the open market. The early reaction was to increase the Canadian dollar in relation to the U. S. dollar by about 5%. Canadian goods exported to the U. S. and paid for in U. S. funds brought 5% less



W. H. RAMBO (left), Industrial Plant Engineer of Portland, Ore., designed Inland Empire's new wood room.



DEAN BANTA (right), Purchasing Agent at Inland Empire, is a son of a former Munising, Mich., pulpmaker.

than they did prior to the government's move.

Since Canada ships about 85% of its total newsprint production to the U. S. and receives payment therefore in U. S. funds, the effect on the paper industry was obvious. Canada has been shipping to the United States at the rate of about 360,000 tons a month.

Edward Mills, Ex-President Of Rayonier, Dies at 75

Edward M. Mills, one of the founders of Rayonier Incorporated, and for many years its president and later its executive committee chairman, died Oct. 10 in San Francisco at the age of 75. He had also been a former executive vice president of Crown Zellerbach Corp.

About 20 years ago he moved to San Francisco, becoming a vice president and director of Crown Zellerbach Corp. later. But in 1936, he resigned as an officer of that company to turn his attention to the founding the Rayonier company, which pioneered new fields in rayon and plastics for wood pulp use. At that time he was president of three of the four predecessor companies consolidated to form Rayonier. He served as president until ill health caused him to retire from active leadership and he was succeeded in that position by Edward Bartsch.

Neubrich Withdraws

LeRoy Neubrich, administrator of the pulp and paper division of NPA in Commerce, was a panel speaker at the October 9th meeting of Metropolitan Tappi, with George Brooks, educational director of the International Brotherhood PSPMW, and E. W. Tinker, executive-secretary of APPA. Henry Perry, editor and consultant, acted as moderator for the discussion of "Economic and Political Problems of the Pulp and Paper Industry" which naturally centered into phases of the industry's mobilization plans.

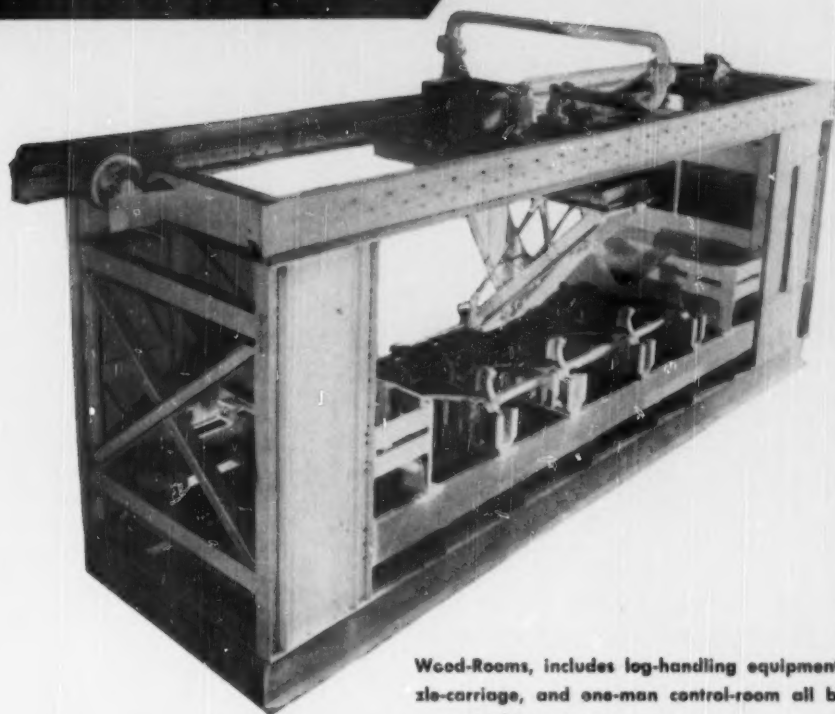
Wire Strike is Short

A wire weavers strike in six eastern states, affecting many plants serving the pulp and paper industry, ended after only five days' work stoppage in October.

Central National Moves

Central National Corp., investment bankers and paper importers and exporters, have moved to new offices on the 35th floor of a new skyscraper building at 100 Park Ave., between 40th and 41st, New York City.

The Bellingham Barker- NEATLY PACKAGED !



The Large-size Bellingham-type Barker, as originally designed and "pioneered" by the Puget Sound Pulp & Timber Company (Bellingham, Wash.) and exclusively built by SUMNER for the hydraulic barking of round logs up to 20' lengths and 84" maximum diameters, has proven its merit by each additional installation in Washington, Oregon, California, British Columbia, and Tasmania (Australia) pulp mills.

To adapt the Bellingham-type Barker principle to meet the needs of pulp mills cutting logs with smaller average maximum diameters and in shorter lengths, SUMNER engineers devised the "Package-Unit" Bellingham-type Barker in two additional sizes: MEDIUM (to handle round logs up to 20' lengths with 60" diameters) and SMALL (maximum 10' lengths and 36" diameters).

The "Package-Unit," which in some cases can be engineered for adaptation to existing pulp mill

Wood-Rooms, includes log-handling equipment, nozzle-carriage, and one-man control-room all built in one complete unit.

The above picture shows the SMALL-Size "Package-Unit" Bellingham-type Barker now being installed at the Publishers' Paper Company, Oregon City, Oregon. Another SMALL-Size "Package-Unit" is in operation at Rayonier, Inc., Hoquiam, Washington, and a MEDIUM-Size "Package-Unit" is at Columbia River Paper Mills, Vancouver, Washington.

If you are considering round log Hydraulic Barkers, with the resultant savings in timber-ability to produce cleaner chips — and drastically lowering your labor costs, it will pay you to investigate the most popular Barker on the Pacific Coast — the Bellingham-type Barker.



UP-GRADING KRAFT

Chlorine Dioxide Bleach Already in Use Pre-Hydrolysis of Wood Chips in South

Three important milestones in the up-grading of the kraft industry can be recorded:

1. Kraft purified pulp has made a commercially acceptable viscose yarn and converters in rayon and plastics industries are very interested in purification of kraft pulps.

2. Chlorine dioxide bleaching attaining an unusual whiteness of pulp, has already been introduced quietly in two or three Eastern and Southern mills—at least one kraft mill—and is announced as the chosen process for the new MacMillan mill at Nanaimo, B.C., whose bleach plant will start up this fall. Extensive use of chlorine dioxide for kraft is forecast.

3. Experiments at the U. S. Forest Products Laboratory in Madison, Wis., indicate the pre-hydrolysis of wood chips before kraft cooking is essential for subsequent satisfactory purification. Bleaching authorities reported that pre-hydrolysis of hardwoods is being done for the first time in America at International Paper Co.'s new kraft dissolving pulp mill at Natchez, Miss.

These were statements made by some of the leading pulp purification authorities in the industry at a Pacific Coast TAPPI meeting in Seattle on Sept. 13. Indicating how much interest there is today in kraft pulp purification, the same subject was a major topic at both the Northwestern Superintendents meeting in Milwaukee in mid-September and at the Lake States TAPPI meeting at Appleton, Wis., Oct. 10.

The discussions revealed that the boast made by Northern and Southern kraft men years ago—"we'll eventually make the finest pulps and papers with kraft"—was at least near realization. They recalled the discouraging efforts in World War II to make a satisfactory nitrating pulp in the South for the army powder plants. A Seattle speaker recalled, also, that during that war, a British scientist came to America seeking a kraft mill that could make a satisfactory pulp for cordite to fire the guns of His Majesty's Navy. Britain's source of supply—a Norwegian kraft mill—had been cut off in the German invasion. Eventually, he had to give up in his search for a kraft pulp. British Columbia sulfite mills eventually supplied the pulp for the British Navy's cordite as the Washington state sulfite mills supplied the nitrating pulp for the U. S. Army.

CHLORINE DIOXIDE BLEACHING

Although discussed as something new on this continent by some speakers, PULP & PAPER has learned reliably that chlorine dioxide manufacturing and bleaching has, quietly but surprisingly, been done either experimentally or commercially at an eastern Canadian mill, at a New England mill and at least at one Southern kraft mill. One mill, using it for rayon pulp, has applied for patents on a continuous method of generation and on methods of separating chlorine from chlorine dioxide.

At the Seattle meeting, experienced bleaching experts, entering the discussion,

expressed doubt that basic patents for chlorine dioxide would stand up under close scrutiny as the basic art of generating chlorine dioxide and its value in bleaching pulp was reportedly demonstrated three decades ago. The question of patent rights came in for a lively discussion.

This followed the reading of a paper, authorized by Halvar Lundberg, veteran Seattle chemical engineer (read in his absence by Dr. E. Gray King, research director, Puget Sound Pulp & Timber Co.). The Lundberg paper, reviewing two Swedish processes for making chlorine dioxide at the mill, and their uses, is published in this issue, following this article.

It is a sequel to his paper on the S. H. Persson method, used at the Skutskar kraft mill in Sweden, published in the May, 1950, PULP & PAPER, page 78. In this second paper he compares it with the Holst method, originated at the Mødomsjo kraft mill at Husum, Sweden, and named for its technical director. The Holst process has been purchased by the MacMillan kraft mill at Nanaimo, B. C.

The Persson continuous process is being discussed now in the U. S. in possible combination with the Mathieson Chemical Corp., "use" patents. The Holst process is a batch process. Another batch process was developed at the I. G. Farben plant in Griesheim, Germany, described in the FIAT Fiscal Report 825, Office of Military Government for Germany.

Early work in Germany (by E. Schmidt, 1921 patents, and Hamburger and Kaesz, 1926) were mentioned in the Seattle discussion of patents. Apparently, the experts were agreed that chlorine dioxide bleach processes, whether good or bad, go back many years, but that its high costs, difficulty in handling and high corrosiveness had discouraged its use until recently.

One authority who entered the discussion pointed out its use in kraft pulp bleaching today will be measured by its ability to make it "easier to sell that pulp or to bring higher prices for it."

The unusually high brightness achieved with a minimum of chlorine dioxide was

stressed—also that chlorine dioxide only attacks the non-cellulose portion of the wood, leaving the cellulose fibers unaffected. As for its corrosiveness, the development and use of new stainless steels and new alloys in pulp mills has lessened that deterrent to its use.

Development of direct chlorination and caustic extraction treatments and poly-phase bleaching during the late 1920's and 1930's diverted attention from chlorine dioxide as a possible bleaching agent.

Cost of chlorine dioxide is about 25 cents a lb. One lb. is equivalent, however, to about 2.7 lbs. of chlorine. That would place the cost of chlorine dioxide at about 9 cents a lb. on a basis equivalent to chlorine. Cost of chlorine is about 3 cents, so in use, the chlorine dioxide is about three times as expensive—a little less than "four times" as estimated by one Seattle speaker. Mr. Lundberg said European mills use only up to 20 lbs. of chlorine dioxide per ton of pulp.

PRE-HYDROLYSIS OF CHIPS

Speakers at Seattle were agreed as to the necessity of a pre-hydrolysis of chips in order to make a kraft purified pulp, as at new I. P. mill in Natchez, Miss. (pictures and description of this mill are published on pages 66 to 69), for nitrating pulps for gunpowder or for rayon or plastics products. Natchez was cited by speakers as probably the first mill to do it with hardwoods in America. Pre-hydrolysis of softwoods for kraft has been done in Sweden, it was stated, and in war years in Germany for textile and tire cord rayon pulps.

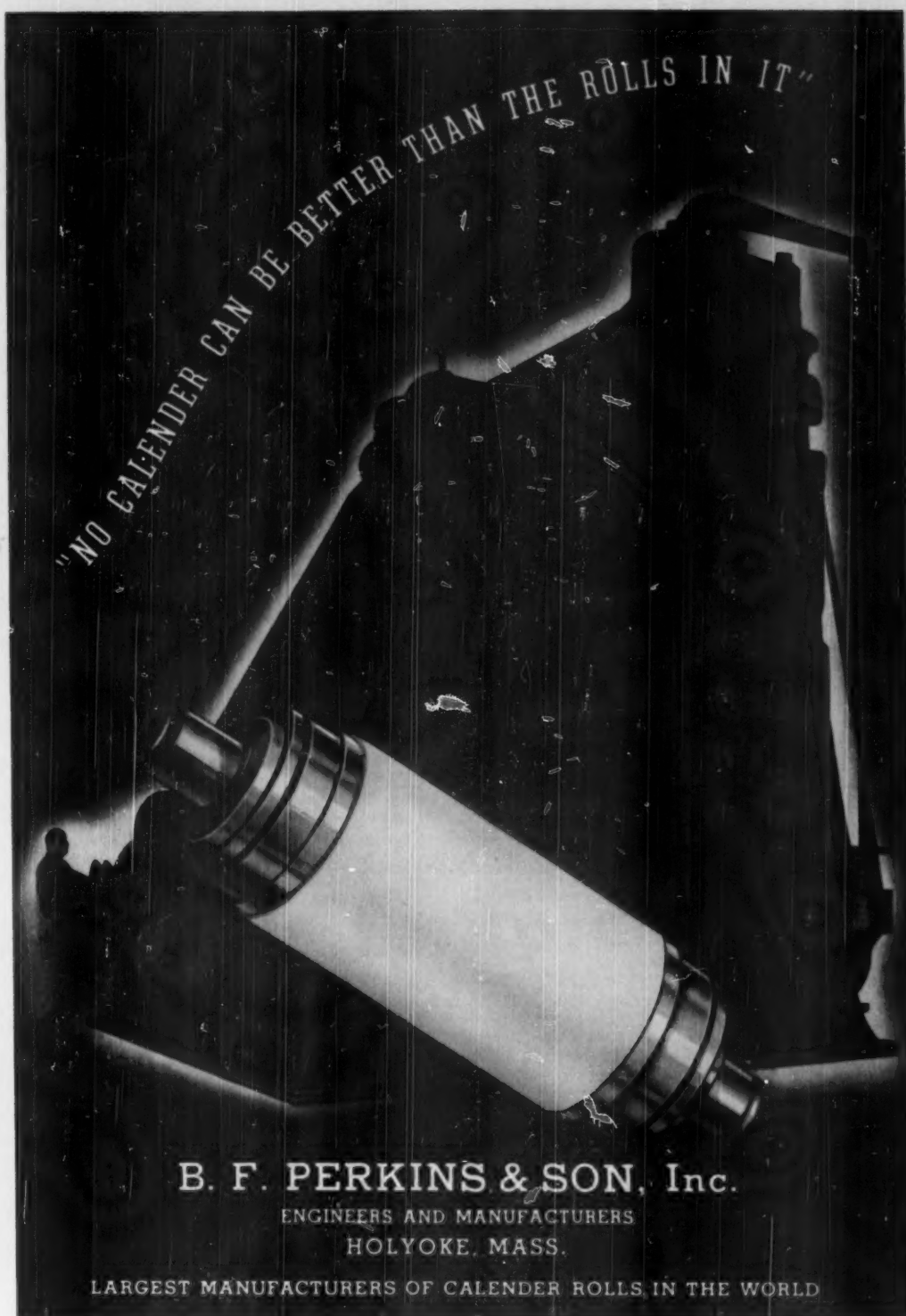
Pre-hydrolysis is the subjection of chips to a pre-treatment with hot water or steam or to a mild treatment with dilute sulfuric acid, dilute hydrochloric acid, some kind of salts or other similar chemicals prior to the cook, in order to reduce the hemicellulose content.

F. A. Simmonds, from the Pulp and Paper Division, U. S. Forest Products Laboratory (whose background is Univ. of Iowa and Univ. of Wisconsin) was featured speaker on this subject. He reviewed recent pulp purifying experiments at Madison. These were on Southern pines, Monterey pine, paper birch, Douglas fir—some with pre-hydrolysis. Yields were 32% to 44%—up to 46% on one semichemical neutral sulfite run, the only one reported that wasn't kraft.

Mr. Simmonds cited these advantages in pre-hydrolyzed pulps:

1. A high quality of filament can be made from it.

2. The process is suited to all types of



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HOLYOKE, MASS.

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woods—hardwoods as well as softwoods.

A disadvantage of kraft pulp for viscose, he said, was that despite pre-hydrolysis, there remained a poor filterability rate. But German publications were quoted as saying that while pre-hydrolysis does remove many pentosans, which are high in kraft pulps, up to 4% can be tolerated in viscose pulps. On the basis of a reported 2,000 value for sulfite pulp filterability, it was suggested that 1,000 to 1,200 would be acceptable in viscose kraft pulp.

Mr. Simmonds said pre-hydrolyzed hardwood kraft pulps have been subjected to spinning trials in a commercial laboratory and have reacted normally.

Ray Hatch, retired former research director of Weyerhaeuser's pulp division, came north from California to be moderator of the Seattle meeting. The program was arranged by Pacific Coast TAPPI vice chairman, Eric O. Ericsson, technical director of Puget Sound Pulp & Timber Co.

Alpha Cellulose Tests

A third paper dealt with various alpha cellulose tests and the errors which arise in the various methods of testing. This was a report on a special study which Weyerhaeuser is still continuing and is of importance to pulp producers and their relations with their customers whose determinations of alpha cellulose content may conflict because of variables that cause errors.

John McNair, research chemist at Longview for Weyerhaeuser, and a cousin of the McNairs of Cloquet, Minn., where he worked summers at The Northwest Paper Co. while at Carlton College, gave the report. Most critical variables Weyerhaeuser found, included the way the sample was prepared for the test and the temperature of the dilution stage. He also reported a great difference of opinions on what filtering medium should be used (Weyerhaeuser uses Pyrex C porosity funnels) and when and how long the

sample is dried (Weyerhaeuser favored drying overnight to speed up testing).

Color Demonstrations

At the evening dinner, Dr. J. A. Van den Akker, of the Institute of Paper Chemistry, gave a talk on color. He operated a color synthesizer developed at the Institute, which synthesizes colors in accordance with "color curves," recreating colors in light that actually match the original paper. He also showed a General Electric color demonstrator that takes additive combinations of red, green and blue, and produces various colors. His talk stressed the fundamentals of color measurement and the principles of colorimetry.

Red Ray Midwest Office

The Red-Ray Manufacturing Co., Inc., New York, has named Ronningen Engineering Sales of Vicksburg, Michigan, as sales representative in Ohio, Michigan, Wisconsin and Minnesota, working on application of radiant gas burners to drying problems.



OLD FRIENDS GOT TOGETHER at Seattle TAPPI meeting and dinner Sept. 13 at which DR. J. A. VAN DEN AKKER (center), of Institute of Paper Chemistry, talked on "Color" and demonstrated a color synthesizer developed at the Institute and a General Electric color mechanism which shows how combinations of red, green and blue produce various colors. Left to right above are: DR. JOHN McEWEN, Assistant Director of Research, Pulp Division, Weyerhaeuser Timber Co.; DR. VAN DEN AKKER, and ROBERT M. TRUE, Pacific Northwest representative of General Dyestuff Corp., and veteran Secretary of Pacific Coast TAPPI.



IN PACIFIC COAST INDUSTRY NEWS (left to right): ERIK EKHOLOM, Vice President and General Superintendent, Puget Sound Pulp & Timber Co., who made a flying trip to Sweden to observe new developments there. His wife accompanied him.

WM. W. CLARKE, Paper Mill Superintendent, Longview Fibre Co., Longview, Wash., who is in charge of the Superintendents' Pacific Coast Division Fall Meeting, to be held at Longview Dec. 5.

ERIC O. ERICSSON, Technical Superintendent, Puget Sound Pulp & Timber Co., who arranged Pacific Coast TAPPI program at Seattle, Sept. 13. He is Coast Vice Chairman.

HALVAR LUNDBERG, Chemical Engineer, Seattle, a leading authority on chlorine dioxide bleaching, whose paper on the subject was given at the Seattle Sept. 13 meeting. He represents Swedish interests in the current introduction of chlorine dioxide bleaching at the new Nanaimo, B. C., plant for the first time on this continent.

CHLORINE DIOXIDE BLEACHING

By A. Halvar Lundberg

Chem. Engineer, Seattle, Wash.

About 20 years ago a German scientist, Professor Eric Schmidt and his co-workers succeeded in isolating from different cellulose raw materials the entire carbohydrate fraction by the use of chlorine dioxide (ClO_2). This fraction called "holo-cellulose," was produced by a slow, single-stage method in which the fibrous material was treated with a mixture of chlorine dioxide (0.25% solution) and pyridine (0.55% solution) in water at 18°C. for 17 to 26 days. The method is still the mildest for completely removing the incrusting materials, but for commercial bleaching the use of such treatment is impractical because of the prohibitive cost. Schmidt's investigation, however, aroused interest in the field, and it was eventually found that chlorine dioxide could be used


for gentle bleaching of the cellulose fibers to a high whiteness without the use of pyridine and excesses of chlorine dioxide.

Most bleaching today is accomplished using chlorine and hypochlorite. Each mill has developed its own procedure in attempting to reach the highest degree of whiteness which can be attained with these chemicals without appreciably altering the physical and chemical characteristics of the original fiber. Pulp bleached with chlorine or hypochlorite, however, has usually lost some of the mechanical strength found in the unbleached fiber, and has been degraded chemically as demonstrated by the lowered viscosity. The great advantage of using chlorine dioxide is that the bleaching can be accomplished without loss of strength. The disadvantages are high cost and the difficulty of producing and handling the chlorine dioxide. The incentive for high quality pulp,

however has resulted in the commercial use of chlorine dioxide, and we find today at least two mills in Sweden where the total pulp production is bleached with chlorine dioxide in the final stages. A Canadian mill planning to use chlorine dioxide is under construction and will be in operation the latter part of this year. An additional five or six mills have facilities for generating and bleaching with chlorine dioxide.

Chlorine dioxide can be stored and transferred safely only in the form of a very dilute aqueous solution because of the explosive nature of the gas, so that it is best to produce it at each bleach plant. It is most economically produced from either sodium or potassium chlorate. These are rather expensive materials, but it should be remembered that when ClO_2 is used as bleaching agent, 1 lb. of it is

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equivalent to 2.67 lb. of available chlorine. Even so it is too costly to use chlorine dioxide as the sole bleaching agent.

The work of the Mathieson Chemical Co. and K. W. Rosen showed that unbleached fibers can be given a preliminary mild treatment with chlorine or hypochlorite in one or more stages, followed by alkali extraction, and can then be bleached to full whiteness with chlorine dioxide without any further change in physical properties. It is this procedure of removing the main part of the incrusting substances with the cheaper chemicals, chlorine and hypochlorite, with or without alkali extraction, that has made use of chlorine dioxide feasible from the economic viewpoint.

Manufacture of Chlorine Dioxide

There are many patented and proposed processes for the preparation of chlorine dioxide but the commercially feasible ones are based on the use of sodium chlorate. The reactions involved in some of these are illustrated by the following equations:

Reducing Substance	Reaction
1. Sulfuric acid	$6\text{NaClO}_3 + 2\text{H}_2\text{SO}_4 \rightarrow \text{ClO}_2 + 2\text{Na}_2\text{SO}_4 + 2\text{HClO}_4 + 2\text{H}_2\text{O}$
2. Hydrochloric acid	$2\text{NaClO}_3 + 4\text{HCl} \rightarrow \text{ClO}_2 + 2\text{NaCl} + 2\text{H}_2\text{O} + \text{Cl}_2$
3. Methanol	$6\text{NaClO}_3 + \text{CH}_3\text{OH} + 6\text{H}_2\text{SO}_4 \rightarrow 6\text{ClO}_2 + 6\text{NaHSO}_4 + 5\text{H}_2\text{O} + \text{CO}_2$
4. Oxalic acid	$2\text{NaClO}_3 + \text{H}_2\text{C}_2\text{O}_4 \rightarrow 2\text{ClO}_2 + \text{Na}_2\text{SO}_4 + 2\text{CO}_2 + 2\text{H}_2\text{O}$
5. Sulfur dioxide	$2\text{NaClO}_3 + \text{SO}_2 \rightarrow 2\text{ClO}_2 + \text{Na}_2\text{SO}_3$
6. Manganous sulfate	$2\text{NaClO}_3 + \text{MnSO}_4 \rightarrow 2\text{ClO}_2 + \text{MnO}_2 + \text{Na}_2\text{SO}_4$
7. Chromic sulfate	$6\text{NaClO}_3 + \text{Cr}_2(\text{SO}_4)_3 + \text{H}_2\text{O} \rightarrow 6\text{ClO}_2 + \text{H}_2\text{CrO}_4 + 3\text{Na}_2\text{SO}_4$

As already mentioned, there are two pulp mills in Sweden manufacturing and using chlorine dioxide. The Stora Kopparberg's plant at Skutskär follows the Permon process which involves reaction No. 7, while the Mo och Doma plant at Husum operates on the Holst process following reaction No. 5. A Canadian mill is also adopting the Holst process. The Permon process has been fully described in the author's recent paper "Manufacture of Chlorine Dioxide by the S. H. Permon Method" (see PULP & PAPER, page 78, May 1939 issue) and the Holst process by Axel Heilborn in "Technical Production of Chlorine Dioxide" (Paper Trade Journal 128 IDS, P. 7, 1949). It may be pointed out that both of these processes yield chlorine dioxide essentially free of chlorine.

It has been shown that chlorine dioxide containing chlorine even to the extent of equal molecular proportions may be used without disadvantage, especially in bleaching sulfate

pulp. The use of mixed chlorine and chlorine dioxide for bleaching at any pH is covered by patents, as is the separation of the gases for use in different stages of bleaching.

Many methods of bleaching with chlorine dioxide have been proposed. In general, they are illustrated by the following examples taken from the patent granted to K. W. Rosen in August, 1938. For the purpose of this discussion, the original data have been converted to units with which we are more familiar.

Example 1

A sulfate pulp with a TAPPI chlorine number of 8.6 was treated for 50 minutes at 1.2% consistency and 7°C. with 114 lb. of chloride per ton of B.D. pulp. After the hydrochloric acid and soluble chlorine products were washed out with water, the pulp was alkali-treated for two hours at 5% consistency and 95°C. with 120 lb. NaOH per ton of B.D. pulp. The pulp was washed free of alkali, again chlorinated at 1.2% consistency and 7°C. with 20 lb. of chlorine per ton of the original B.D. unbleached pulp. This treatment was followed by another alkali extraction and water wash as above. The partially bleached pulp, now having a TAPPI chlorine number of 14, was treated for 4 hours at 7% consistency and 30°C. with a chlorine-free chlorine dioxide solution containing 12.2 lb. of chlorine dioxide per ton of B.D. 4th stage pulp. After the chlorine dioxide treatment, the pulp was washed with water, followed by an alkali treatment for 1 hour at 5% consistency and 70°C. using 200 lb. of NaOH per ton of B.D. 4th stage pulp. The pulp was washed free of alkali and again treated with chlorine dioxide. The second chlorine dioxide treatment was for 8 hours, also at 7% consistency and 30°C., with a chlorine-free chlorine dioxide solution containing 6 lb. of chlorine dioxide per B.D. ton of 4th stage pulp. The total amount of chlorine dioxide added from the beginning of the bleaching operation was consequently 18.2 lb. of chlorine dioxide per ton of B.D. 4th stage pulp. The final bleached pulp was washed with water.

Example 2

A strong sulfite pulp having a TAPPI chlorine number of about 16 was treated for one hour at 2.3% consistency and 24°C. with 168 lb. of chlorine per ton of B.D. pulp (about 52% of demand). After the hydrochloric acid and soluble chlorination products were washed out with water, the pulp was alkali treated for two hours at 5% consistency and 50°C. with 128 lb. of NaOH per ton of B.D. unbleached pulp. This 2nd stage pulp, which had a TAPPI chlorine number of 2.0 was then treated for 25 hours at 7% consistency and 28°C. with 7.6 lb. of chlorine-free chlorine dioxide per ton of B.D. 2nd stage pulp. The final bleached pulp was washed with water.

The conditions specified in Examples 1 and 2 are summarized in Tables 1 and 2 respectively.

Table 1.
SUMMARY OF CONDITIONS FOR
CHLORINE DIOXIDE BLEACHING OF
SULFATE PULP* (Example 1)

Stage	Chemical	Lbs. of Chemical per B.D. Ton	Consistency %	Time Hr.	Temp. °C.
1	Cl ₂	114	1.2	0.83	7
2	NaOH	120	5	2	95
3	Cl ₂	20	1.2	-	7
4 ^b	NaOH	120	5	2	95
5	ClO ₂	12.2	7	4	30
6	NaOH	200	5	1	70
7	ClO ₂	6	7	8	30

*Water wash after each stage.

^bSulfate pulp with TAPPI chlorine number of 8.6.

The partially bleached pulp at the end of the 4th stage had a TAPPI chlorine number of 14. The chemical usage in the remaining stages is based on this pulp rather than on the original unbleached pulp.

Table 2.
SUMMARY OF CONDITIONS FOR
CHLORINE DIOXIDE BLEACHING OF
SULFATE PULP* (Example 2)

Stage	Chemical	Lbs. of Chemical per B.D. Ton	Consistency %	Time Hr.	Temp. °C.
1	Cl ₂	168	2.3	1	24
2	NaOH	128	5	2	50
3 ^b	ClO ₂	7.6	7	25	28

*Water wash after each stage.

^bSulfite pulp with a TAPPI chlorine number of about 16.

The partially bleached pulp at the end of the 2nd stage had a TAPPI chlorine number of 2.0. The chemical usage in the 3rd stage is based on this pulp rather than on the original unbleached pulp.

As mentioned in the author's earlier paper, when chlorine dioxide is used in an acid solution a "blocking effect" similar to that encountered in bleaching with chlorine is noticed. For this reason it is not possible to remove an unlimited amount of lignin with chlorine dioxide in one single step. If the lignin content to be removed is high the chlorine dioxide treatment must be divided into steps separated by alkaline washings in order to remove the oxidized and chlorinated products which are causing the blocking. Of course, as much as possible of the incrusting materials should be removed first with the less expensive chlorine and hypochlorite. Thus, for example, if the bleached western hemlock pulp from a third stage hypochlorite treatment is further bleached with 5.6 lb. of chlorine dioxide (15 lb. of available chlorine) at 70°C. for two hours, a 93 brightness pulp is produced without further loss in viscosity.

The widest application of the use of chlorine dioxide as a bleaching agent has been in the production of bleached sulfate pulp. With chlorine dioxide it is now possible to produce a strong bluish-white bleached sulfate pulp with excellent papermaking qualities. It is probable that sulfite pulps, too, may eventually be bleached with chlorine dioxide. Even now one Swedish sulfite mill is being revamped for chlorine dioxide bleaching, and we will soon hear more about this development.

One of the Men behind Eastwood Wires

Robert Zimmerman

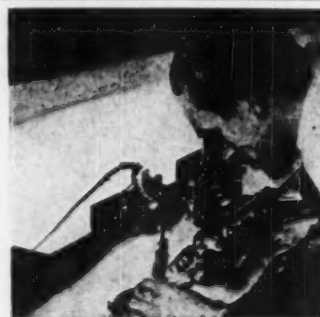
"Seaming-ly" at Work

The supervisor of our seaming department is shown operating a brazing machine across a fourdrinier wire, the ends of which previously had been prepared.

Under microscopic control, this machine brazes a fine, strong, uniform seam that probably will out-

last the rest of the wire.

Seams once made by hand were a major source of complaints. Today—because of the brazing machine developed by the Eastwood organization—seam troubles have been largely eliminated.



EASTWOOD-NEALLEY CORPORATION • Belleville, N. J.

Warren Type "A" Liquor Pumps

Warren Steam Pump Company, Warren, Mass., pump specialists in the pulp and paper mill field, announce a centrifugal pump, shown here, especially suited to pumping chlorinated liquors, acids and similar liquids. All internal surfaces of casing exposed to liquid can be coated with rubber, or any substance which can be vulcanized or bonded to cast iron. Impellers may be similarly coated, or of special alloys uncoated. Lining mechanically locked as well as bonded.

Bulletin 245, sent upon request, fully describes Warren's liquor pumps.

PUGET SOUND PULP AND TIMBER CO. employees have organized a trap shooting club. Equipment, ammunition and a range have been purchased by the group which is headed by **ELTON CARR** of the maintenance department.

Dave Flood to Build Paper Mill in Ceylon

David J. Flood, Longview, Wash., for the past few years carrying on engineering and construction work in pulp and paper field on Pacific Coast, has affiliated with De Soysa & Co., Ltd., Colombo, Ceylon. In June he left for Ceylon to take up duties with the firm as project engineer for building of a hydro-electric plant and a 100-ton paper mill at Colombo, which is reported to be primarily a newsprint mill. Upon completion of the paper mill, he is expected to participate in management of the plant.

Mr. Flood was consulting engineer of Pacific Paperboard Co. at Longview until early 1947. The next year he was consultant engineer for Southern California Associated Newspapers, and subsequently operated his own construction company at Longview.

Alaska Statehood Issue Affects Pulp Project

Ben B. Mullen, of New York, son of an Alaskan banker, and prominently identified with promotion activities looking toward a small quality sulfite wood pulp mill near Sitka, Alaska, was quoted on a recent visit to Juneau as saying "there appears little likelihood of any new developments this year in that project, since the problems of financing have not been completely solved."

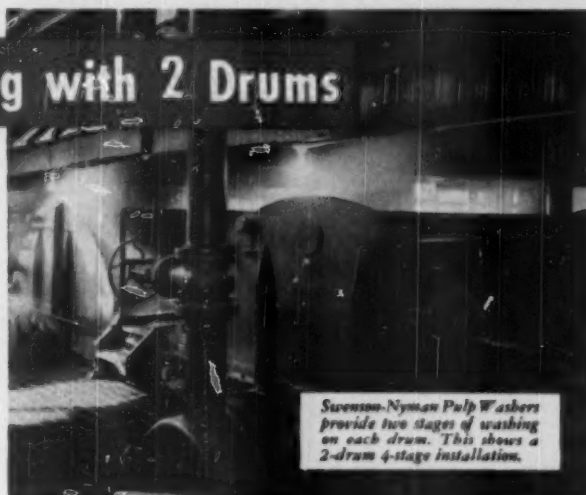
The Juneau Empire also quoted him as saying "the important issue of statehood for Alaska has great bearing on this matter, because once settled it will create an atmosphere of local stability so necessary in forming a base for such undertakings . . . passage of the measure would also provide a favorable psychological impact upon those watching Alaska from the outside."

4-Stage Pulp Washing with 2 Drums

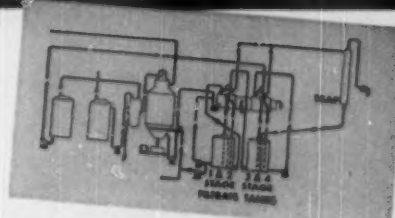
**CLEANER STOCK
LESS DILUTION
NO SEWER LOSS**

Swenson-Nyman Pulp Washers have these outstanding features . . .

- ✓ Two-stage countercurrent washing on each drum
- ✓ Strong and weak liquors handled separately
- ✓ Independently controlled vacuum on each stage
- ✓ Uniform distribution of vacuum across entire sheet
- ✓ Pulp picked up at low submergence level
- ✓ Uniform pickup and sheet formation
- ✓ Large washing area—twice sheet-forming area
- ✓ Low point of sheet discharge—at centerline of drum



Swenson-Nyman Pulp Washers provide two stages of washing on each drum. This shows a 2-drum 4-stage installation.



Send for Bulletin E-108

SWENSON

REG. U.S. PAT. OFF.
SWENSON EVAPORATOR COMPANY

DIVISION OF WHITING CORPORATION
15632 Lathrop Ave. Harvey, Illinois
Eastern Sales Office and Export Department:
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- Evaporators
- Pulp Washers • Deckers • Filters
- Digester Blow Condensers
- Surface Condensers
- Turpentine Condensers • Carotizers

Management Meeting Draws Mill Men

Twenty-three members of the Kimberly-Atlas Management Club, of the two K-C mills at Kimberly, Wis., and four from the Thilmany Management Club, Kaukauna, Wis., attended the second annual meeting of the Wisconsin Conference of Foremen's Clubs in Milwaukee.

"Building Men for Management" was the conference theme.

Irving W. Kersten, assistant superintendent at the Kimberly mill, was a member of one of the four panel discussions

held there.

J. T. Doerfler, A. D. Wilkinson, A. G. Briggs, Leonard Meyer, Claude Crosby, Malcolm True, Joseph Frye, Harold Wenzel, Paul Moderson, Carl Rehfeldt, David Lloyd, Frank Muelmans, C. R. Laut, Clarence Martin, Peter Van den Heuvel, William De Bruin, Ervin Welhouse, John Clark, I. J. Litton, A. C. McIntyre, Geraldine Garrasin, Floyd Rosencrantz and Kersten attended from Kimberly.

Thilmany members present were Ben Pahl, Otto Krueger, Charles Seaborne, Jr., and Charles De Young.



PEDIGREED DOGS

THE COLLIE — Originally bred in Scotland, he was the constant companion of the shepherd and his sheep and is still a valuable working dog on the farm.

The
DRAPER
Felt

The Felt with a Pedigree

DRAPER BROTHERS COMPANY

Woolen Manufacturers Since 1856

CANTON, MASSACHUSETTS

RALPH E. BRIGGS, Sales Manager

BRADFORD WEST, Pittsfield, Mass. WILLIAM H. CONNOR, Jr., Canton, Mass. L. H. BREYPOGLE, Kalamazoo, Mich.
WALTER A. SALMONSON, 2514 Northeast 59th Ave., Portland, Oregon L. L. GRIFFITHS, Jr., Kalamazoo, Mich.
HAROLD H. FISH, Syracuse, N. Y.

Safety Records for Paper Industry

A recently released publication of National Safety Council findings pays tribute to particular organizations in pulp and paper industry for "outstanding achievements in safety." Among plants receiving recognition for world safety records, listed according to type of manufacturing, are the following (with injury-free man-hours listed in each case):

Hollingsworth & Whitney Co., Waterville, Me., for "best record in book and specialty mills and in the entire industry." H&W's injury-free man-hours was listed as 3,343,598;

Newsprint—St. Croix Paper Co., Woodland, Me., with 3,061,526;

Paper Goods Manufacturing—White Corbin Division, U. S. Envelope Co., Rockville, Conn., with 2,960,884;

Paper Mill—Longview Fibre Co., Longview, Wash., with 2,612,656;

Boxboard—Cornell Wood Products Co., Cornell, Wis., 1,750,000;

Paperboard—Container Corp. of America, Carthage, N. Y., 1,228,416.

Central Fibre Has New Headquarters in Quincy, Ill.

General headquarters offices of Central Fibre Products Co., for years at 111 West Washington St., Chicago, are now at 901 South Front St., Quincy, Ill.

Although the move was made about ten months ago, it was not generally known. A new office building has been built, modern in every respect, just across the street from the biggest of the half dozen boxboard, chipboard and strawboard mills operated by this company in several west north central states.

General offices are on the second floor. Mill offices are on the second floor. The basement houses utilities, such as telephone equipment, heating, air-conditioning, etc., employees' meeting room, and a modern laboratory for testing raw materials and finished products, including boxes from some of the subsidiary plants.

Officials who moved from Chicago to Quincy are E. P. Lannan, vice president and secretary; R. G. Paramore, vice president; H. L. Brunner, treasurer, and J. E. Presson, controller. Remaining in Chicago is the sales office, under C. S. Moyer, vice president; and the traffic office, under J. P. Friel, traffic manager.

J. G. McFarland is general manager, with headquarters in Quincy.

C. A. DOBSON, maintenance labor foreman, Crown Zellerbach Corp., Camas, Wash., spent three weeks vacationing in Mexico, visiting archeological ruins as far away as Oaxaca, 350 miles south of Mexico City.

PULP & PAPER

THURLOW BROTHERS IN NEW POSTS

Almost within a few hours, in the first week of October, announcements were made independently of new important positions for two Thurlow brothers, both sons of the late Harry A. Thurlow, who for many years was one of the outstanding sawmill engineers and designers of the Pacific Coast.

J. Stephen Thurlow, for five years manager of a mill supply company in Seattle, has joined the Dan E. Charles Agency, Pacific Coast and Canadian representatives of pulp and paper mill equipment manufacturers, as the manager of its machinery sales.

Harry A. Thurlow, Jr., almost at the same time, was promoted from resident engineer to become one of the assistant resident managers of the Port Angeles, Wash., mill of Rayonier, Inc.

Both Thurlows were born in Menominee, Mich., now a famous paper mill town, but then there were 52 sawmills on the river—now all gone. Their mother, widow of the distinguished sawmill engineer, lives in Seattle.

Here follow more complete reports on their new activities:

Rayonier Promotions

Harry A. Thurlow, Jr., whose appointment as an assistant resident manager at the Port Angeles, Wash., mill of Rayonier, Incorporated, was announced by President Ed Bartsch, was a 1931 graduate of the University of Washington in electrical engineering. Henry Sprague also continues as assistant resident manager at Port Angeles. William E. Breitenbach, vice president of Rayonier, is resident manager there, but oversees other Rayonier operations.

Harry Thurlow, Jr., was with a metal fabricating firm and later was a consulting engineer with Puget Sound Power & Light Co., after leaving college. He joined Rayonier's engineering department at Hoquiam, Wash., in 1935 and moved to Port Angeles in 1944 as assistant resident engineer. He became resident engineer the next year.

Bryan L. Rauschert has been promoted from assistant to resident engineer at Port Angeles. Donald E. Lawson, shift superintendent at Port Angeles in the pulp mill, was made assistant resident engineer.

Steve Thurlow Joins Dan E. Charles Agency



As manager of machinery sales for the Dan E. Charles Agency, which is headed by Mrs. Dan E. Charles, J. Stephen Thurlow (in picture) will be in charge of Pacific Coast sales and service for Moore & White Co., Raybestos - Manhattan,

Lodging Engineering, Noble & Wood, Loring-Coe, and Poirer. "Hap" Felt continues as Mrs. Charles' representative for the wire and felt accounts.

"Steve" graduated as mechanical engineer from the University of Washington in 1935. He was in electrical manufacturing business until 1942. During World War II he was in charge of all modifications and substitutions of materials for the U. S. government in the manufacture of medium tanks at Pacific Car & Foundry Co., Renton, Wash., after which he was manager of a Seattle mill supply house for five years.

He left that position in January this year and was in business as a manufacturers' agent when he accepted the offer from Mrs. Charles to join her firm.



NILS O. TEREN (in picture), Vice President of Columbia River Paper Mills, Vancouver, Wash., and Oregon Pulp & Paper Co., Salem, Ore., succeeded E. Y. Noyes, Jr., on Oct. 1 as President of the two industries. Mr. Teren's promotion followed resignation of Mr. Noyes, who will devote himself to termination of his other business interests with a view to retiring.

W. Y. ALEXANDER, Vice President of the two paper companies, has also retired as an officer and also as a director of the companies. Mr. Alexander, who was in charge of all the two companies' logging and lumbering operations, said he had nothing definite in mind for the immediate future.

NOPCO'S NEW PACIFIC COAST PLANTS

Plans for manufacture of its industrial chemicals on the Pacific Coast are moving ahead rapidly, according to recent announcement by Thomas A. Printon, president of Nopco Chemical Co., Harrison, N. J.

Two Nopco-owned plants, both in Richmond, Calif., will be utilized in the Pacific Division expansion program announced last April. One of them, a modern 4-year old plant at 1141 So. 14th St. is being converted to manufacture of stearates and palmitates by Metasap Chemical Co., wholly owned subsidiary and is scheduled to go into production shortly after January 1.

The second plant, at 1140 So. 10th St.,

is being fitted for production of the extensive line of chemical processing specialties and agricultural products marketed through the company's Industrial Department. Complete installation is expected before the end of June, 1951.

The Pacific Division was established to take care of the growing Metasap and Nopco business in 11 western states and British Columbia. Further building expansion is made possible by Nopco's ownership of a large tract between the Richmond plants.

Pacific Division activities are guided by Perc S. Brown, vice president, assisted by Harold A. Swanson, general sales manager.

ROBERT AND COMPANY ASSOCIATES

96 POPLAR STREET • ATLANTA, GEORGIA

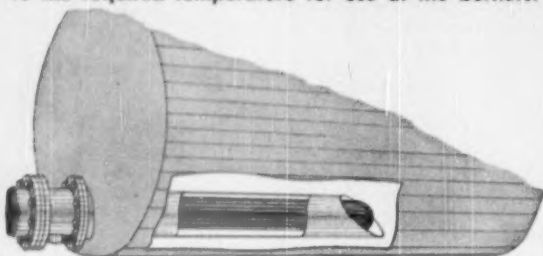
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PAPER AND CHEMICAL INDUSTRIES*

HAROLD R. MURDOCK, *Chemical Engineer*

PROCESS STUDIES • DESIGN • POWER PLANTS • INDUSTRIAL WASTE DISPOSAL

ALASKAN "OIL SUCTION" HEATERS

Takes the load off the pump and pre-heats fuel oils to the required temperature for use at the burners.



Often, with long oil lines these units are used as a first stage heater to facilitate pumping and a second stage Alaskan Type "B" unit is used as a final heater. Economy is provided by controlling the flow of oil through the inner shell only as oil is required, thus preventing general heat dissipation to the entire tank and minimizing the size heater required. Complete disassembly and removal can be effected by disconnecting the head flange bolts.

ALASKAN COPPER WORKS

3609 East Marginal Way

Seattle, Washington



News About Industry People From Coast to Coast

WALTER S. JOHNSON, sulfite tour foreman at the Niagara, Wis., mill of Kimberly-Clark, who helped start up both the Terrace, Ont. (LongLac), and Coosa Pines, Ala., mills, retired recently after 25 years' service.

L. A. TURNAGE, power superintendent, Sonoco Products Co., Hartsville, S. C., was recently honored by election as governor of the South Carolina district of Civitan International.

CLAUDE CHRISTIANSEN, kraft mill tour foreman, has left Weyerhaeuser Pulp Division at Longview, Wash., to become pulp superintendent of Potlatch Forests Inc., at Lewiston, Idaho.

NEKOOSA-EDWARDS PAPER CO., Port Edwards, Wis., directors reelected John E. Alexander, president and general manager, S. A. Casey, secretary, and W. A. Radke, treasurer.

LEO C. KELLEY, general superintendent of B. C. Pulp & Paper Co., Vancouver, is touring Sweden and other European countries, making a survey of recent developments in pulp manufacture.

J. D. BROOKES has been appointed technical assistant to the managing director, Australian Paper Manufacturers, Ltd., Melbourne. **A. P. McLEAN**, operations manager of the same company, has returned from a trip to Europe.

H. E. MILLER, president of Columbia Paper Co., Vancouver, B. C., has been elected president of the Canadian Paper Trade Association.

JOHN M. GRAEF has retired as mechanical engineer with Kimberly-Clark Corp.'s staff engineering department, Neenah, Wis., after 18 years with K-C, following 21 years with his own engineering firm. About 100 men with whom he worked gave him a farewell party.

Gardner Promotions

Colin Gardner III, vice president, operations, of the Gardner Board and Carton Co., Middletown, O., announces three appointments: Charles K. Pigman, as super-

visor of planning, Middletown operations; Edward W. Rathbun as acting superintendent; and John Blust as acting assistant superintendent of the Middletown carton plant.

Daniel T. Quirk President Of Peninsular Paper Co.

Daniel T. Quirk has been elected president of Peninsular Paper Co., Ypsilanti, Mich., succeeding his father, Daniel Lace Quirk, Jr., who has been elected chairman of the board. The latter headed for 50 years the firm founded in 1867 by Daniel Lace Quirk, Sr.

Daniel G. Quirk, great-grandson of the founder, was named vice president and John D. Shepard, former assistant sales manager, became sales manager.

This mill has two Fourdrinier machines; makes 40 tons of cover, calendar and other specialties.

GILBERT P. BOTHWELL, for the past two years assistant district sales manager of Hammermill Paper Company in New York City, has returned with Mrs. Bothwell for duty at Erie, Pa., from his apartment in Fleetwood, N. Y. Mr. Bothwell, taken seriously ill early this year, will return to the mill offices. His health is improving rapidly.

JOHN HEMMINGSEN, formerly logging superintendent for Bowater's Newfoundland Pulp & Paper Mills, has returned to the West Coast. He formerly worked in the woods of Vancouver Island.

WANTED—Shipping Superintendent. To warehouse and ship paper bags, rolls, sheets and miscellaneous paper products. Must be able to direct labor efficiently and economically. The opportunity is in large mill in Southeast. Climate excellent. When applying state full qualifications, experience, education and references. Please reply to P&P Box No. 85, c/o PULP & PAPER, 71 Columbia Street, Seattle 4, Wash.

LARGE PAPER MACHINERY MANUFACTURER interested in securing services of an assistant superintendent of machine shop, also erecting men for shop and field work. In reply, please state age and experience. Reply to P&P Box No. 84, c/o PULP & PAPER, 71 Columbia Street, Seattle 4, Wash.

POSITION WANTED

SALES EXECUTIVE—48, Member T.A.P.P.I., S.A.P.I., wide acquaintance with Publishers, Converters, Merchants, Printers. Experienced Book, Bond, Coated, Groundwood, Sulphate. Capable Manager. Personable, Aggressive. Available October 15. Write Box 83, c/o PULP & PAPER, 71 Columbia St., Seattle 4, Wash.

ALTON BOX BOARD

(Continued from Page 46)

pared to boiler size. It is designed for 100,000 lbs. per hour, but runs 130,000 lbs. and can burn either gas or coal or oil, or any combination of the three. Coal is stoked and measured by automatic device and the whole boiler is a one-man automatically-controlled operation.

Four older Alton boilers burn coal, earliest fuel supplied in the area. Another consumes natural gas, a new resource of the region, and can burn oil. All have Hagan air-operated combustion controls. Air is normally taken from the plant's air distribution system, but an Ingersoll-Rand Type-20 compressor in the boiler-house cuts in automatically should the regular supply fail.

Electric power is generated by four turbo-generators. One 1500 kw. condensing unit is arranged to permit extraction of steam at 5 psi. pressure for heating heater water. Three other machines of 1500, 2500 and 5000 kw. capacity, respectively, use steam at 450 psi. pressure and 750 degrees F.

The mill consumes daily around 5,300,000 gallons of water obtained from wells.

Storage and Fire Protection

Paper and straw are stored outdoors by Lorain (Thew) cranes. Each paper stack contains around 1,000 bales. The paper and straw require careful protection against fire. There are four plant yards, and often the piles contain up to 5,000 tons of purchased wood pulp; 20,000 tons of salvaged or scrap paper; and, in the past, up to 30,000 tons of straw.

Here is a heavy investment, requiring adequate protection. An independent pumping station, with its own source of power, is set up to assure this protection, housed in a small brick building directly over a 1,000,000-gallon tank reservoir of water. Power plant consists of an Ingersoll-Rand Type S, eight-cylinder, 600-hp. Diesel engine, directly connected with a Westinghouse 500 kva alternating current generator. Here is also a 4-stage, 150-hp. centrifugal fire-pump of 2,000 gpm. capacity at 100 lbs. pressure.

There are 50 fire hydrants throughout the storage area. There are two miles of underground piping. Latest additions are fire-towers at strategic points, with flood-lights on top and 250-ft. reels of hose at base. Fortunately, these fire-fighting facilities have never had to be mustered into service—maybe that's why—because they are there!

One final important point to be made about this progressive and huge producing industry of the paperboard field is the very large storehouse it has provided for storage of the products for its customers. This, coupled with its own fleet of transport tractors and trailers, provides its customers with the best in service.

Baker Appointed Gen. Supt. of Pennsalt's West Plants

Appointment of John H. Baker as general superintendent of Pennsalt of Washington's western manufacturing operations has been announced by Fred C. Shanaman, president. The company's operations in the West comprise plants at Tacoma, Wash., Portland, Ore., and Bryan, Texas.

Mr. Baker has been superintendent of the Tacoma, Wash., plant since 1928, when Pennsalt incorporated the Tacoma Electrochemical Co. He began his career in the chemical industry in 1916 when he became general foreman, later superintendent, of the Michigan Electrochemical

Co.'s plant in Menominee, Mich. Pennsalt acquired Michigan Electrochemical in 1924 and in 1932 moved its operations to Wyandotte, Mich.

In making his announcement, Mr. Shanaman commented: "Company expansion at our western plants in the last few years has emphasized the need for a general superintendent of these operations. We believe this move, through the closer integration of our several units, should improve production efficiency."

LESLIE E. WARWICK, plant engineer at Crown Z's newsprint mill at Port Angeles, with six children in his fine family now, has found plenty of occupants for his new station wagon. Just fills the bill, he says.

Are profits *slipping* through your screen plates?

Rugged UNION SCREEN PLATES

need no babying
to give you full
capacity profits.



STAINLESS
METALS

CORROSION RESISTANT
BRONZE

BRONZE FLAT AND
CYLINDRICAL PLATES

"CHANNEL BACK"

U. S. PAT. NO. 2,419,155

"CORROSIST"

TRADE MARK REG. U. S. PAT. OFF.

Pacific Coast Representatives:

PACIFIC COAST SUPPLY CO.

PORTLAND, OREGON

PP-15

ROBERT'S BURRS

INSURE

Lower Stone Costs Better Pulp



Pacific Coast Supply Company
PORTLAND, OREGON • SAN FRANCISCO, CALIFORNIA

Oswego Cleans Pulp

To meet the ever-increasing demand for cleaner groundwood pulp, the Oswego Falls Corp., Fulton, N. Y., has installed a Vortrap system consisting of two 10-inch primary, and one 4-inch secondary Vortrap, which have been designed and built by Nichols Engineering to handle up to 100 tons of stock at 0.75 percent consistency.

Installed immediately after the bull screen, the Vortraps pass the stock to conventional screening equipment and then to the wet machines. An additional result, it is claimed, is to increase screen-plate life by avoiding unusual abrasive action by the stock. Foreign material rejected in the primary units is bled from the top of the waste receiver, diluted with white water and further treated in the secondary unit from which extraneous matter is taken off continuously to the sewer. Thus through the patented Vortrap bleed principles Oswego is taking out foreign matter such as sand, fly-ash, shives, bark, stone particles, and unclassifiable dirt.

15-Ft. Boat in Paper Box

The Beetle Boat Co. ships a 15-foot Fiberglas boat with a double-wall corrugated box made of A- and C-flute, 100% kraft, 0.023 outer-middle-inner liners, with 0.009 kraft corrugating medium. The boxes are bound with steel strapping. The cost is 30% less and tare weight 90% less than when wooden crates are used.

United Board & Carton To Install Power

United Board and Carton Corp. will install three transformers at its Thomson, N. Y., paperboard plant this summer in order to purchase supplemental electric power from the Niagara Hudson Corp. The purchased power will supplement the plant's own hydro-electric power system to insure continuous production of quality paperboard during poor water conditions.

Allis Chalmers Men

Newly named sales representatives to Allis-Chalmers West Coast offices are Edward E. Wilson and Ronald D. Brown to the company's Portland district office; David H. Holmes to the Seattle district office, and James V. Miller to the Spokane district office.

JAMES QUINN, Purchasing Agent of the Stockton, Calif., Division of Fibreboard Products, Inc., who has rounded out more than 25 years with the company. By a strange coincidence

Timmy and both of his predecessors, Bill Hawkey and Bob Tenbrock, were formerly Head Store Accountants for the Southern Pacific Railroad. Timmy held that post two years before joining Fibreboard, where he now keeps track of the thousands of things a board mill needs, from safety pins and pencils to carloads of materials and machines costing thousands of dollars. He saw a good part of the world while in the Navy in 1918-19.



Personals

A. J. THIEL, vice president of Angier Corp., building and industrial paper makers at Framingham, Mass., advised PULP & PAPER at press time that Angier's board of directors had not yet met to name a successor to the late JOHN McNEIL ANGIER, who died Sept. 4, and since 1946 had been president of the firm his father founded in 1885. Only 41, Mr. Angier graduated from Choate School in Connecticut and in 1929 joined the company. He was a director of Angier, of Framingham Trust Co., and of Angier Pacific Corp.

STEVE RUPERT, assistant resident manager of the Shelton, Wash., mill of Rayonier, Inc., has been transferred to the Fernandina, Fla., division, as assistant resident manager. Mr. Rupert graduated from Montana State College as a chemical engineer in 1931, joining Rayonier first in Port Angeles. Later he served in both Hoquiam and Shelton mills. Moving to Florida with him are his wife, daughter Mary, 8, and son Frank, 3.

G. H. WILTSHIRE has been appointed assistant manager of the Broadfoot Mill, Australian Paper Manufacturers, Ltd. H. COY has been transferred to the Fairfield mill as finishing superintendent. He was formerly at Melbourne.

ERNST MAHLER, executive vice president, Kimberly-Clark, a few weeks ago made a trip to the Pacific Coast on a tour as a member of Allis-Chalmers' board of directors.

JOHN B. RAUCH, yard superintendent, Crown Zellerbach Corp., West Linn, Ore., and brother of former Groundwood Superintendent Matthew Rauch at C-Z, Port Angeles, retired Aug. 1 after completing 45 years service with the organization, and was succeeded by BURNETT L. POPE, formerly yard foreman.

RUSSELL F. ATTRIDGE, manager of the paper department of Johnson, Carvell & Murphy, Los Angeles, for the past 25 years, died Oct. 4. He was a charter member of the Paper Mill Men's Club.

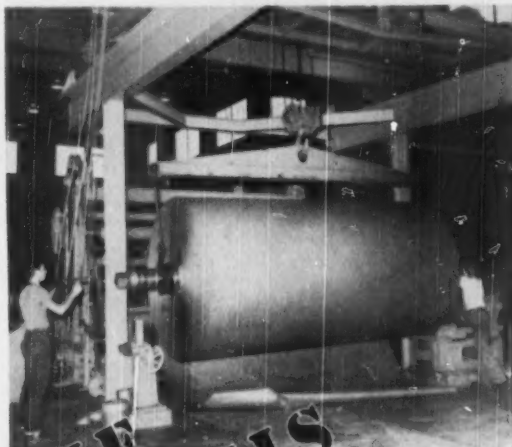
BEN REED, Crown Zellerbach Corp., Camas, Wash., has been promoted to bag factory superintendent and FRED STOLTZ, industrial engineer, has become assistant superintendent of bag factory. J. L. SHIVELY, until recently bag factory superintendent, will continue with the organization in advisory capacity until Nov. 1 at which time he retires.

GEORGE D. GROGAN and DONALD MacFARLAN JR. have been appointed district sales managers in Chicago and Detroit, respectively, for heavy chemicals for Penn Salt Mfg. Co.

PAUL E. COOPER, president of Pacific Mills, Ltd., Vancouver, B. C., was in hospital early in October to undergo a slight operation, from which he has fully recovered.

H. GRAY CARTER has been promoted from shift foreman to assistant superintendent of the Paper Processing Dept., Union Bag & Paper Corp., Savannah, Ga., and will supervise installation and operation of a new polyethylene coating machine there.

JAMES G. CONLEY and JOHN R. CRYAN have been appointed general sales manager and sales manager, respectively, by Aubrey Crabtree, president of Fraser Paper, Ltd., Madawaska, Me., and their headquarters will be at 420 Lexington Ave., New York. Logan W. Miller is assistant sales manager, 815 Superior Ave., Cleveland, O., and Cyd F. Gillis, assistant sales manager, at 111 West Washington St., Chicago.



**HANDLE
PAPER ROLLS
FAST AND
EFFICIENTLY**

The EDERER roll-handling crane shown here is moving paper rolls fast and efficiently in the Weyerhaeuser Timber Company mill at Springfield, Oregon. It was custom-built to the exact job requirements of the mill. This—and the other four EDERER cranes

in this same mill are typical examples of EDERER'S designing and building for the pulp and paper industry—which pays off in man-hours saved—dollars saved. An EDERER engineer will be glad to discuss your special job requirements.



STAND-BY CRANES - HIGH LIFT
CRANES - CALENDER CRANES - LOG
CANTING CRANES - MONORAIL HOISTS

151C50

EDERER

ENGINEERING COMPANY

2931 FIRST AVE. SO. SEATTLE 4, WASH.



easily installed!
highly resistant
to abrasion!

**SARAN
RUBBER
TANK
LINING**
resists
corrosion!

Saran rubber, developed by The Dow Chemical Company, leads the way to cutting corrosion costs to a minimum. The extremely high degree of chemical and abrasive resistance, found in saran rubber, makes it the outstanding tank lining where the storage and conveyance of grease, solvents, acids or other chemicals is indicated.

Saran rubber can be applied easily and economically by experienced tank lining applicators located strategically throughout the country. Saran rubber lined pipe is available also—8 inch diameters and larger, and up to 20 feet in length.

Get in touch with an applicator today by contacting your nearest Saran Lined Pipe Company office—find out how you can add many years to the life of your costly equipment. Write: Dept. TSP-100.

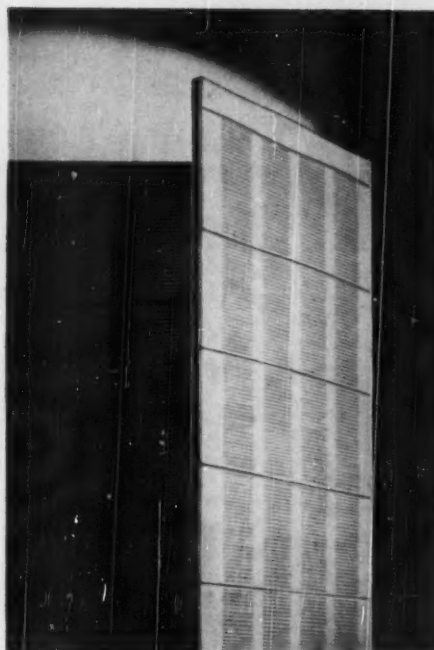
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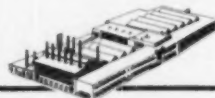


3 Good Reasons Why 28,000 FABRICATED SCREEN PLATES Are Now In Service

"Hardy" fabricated screen plates, made by Magnus, have a high-strength, thin-sheet design — specially engineered for maximum flow. That's why you're sure of these 3 service-proved advantages:

- (1) **Increased Plate Capacity**— The thin sheet eliminates relief milling, and with recommended arrangement, substantially increases capacity per plate.
- (2) **Longer Life**— Slots remain sharp, side walls highly polished for the life of the plate. There's greatly improved corrosion resistance.
- (3) **High, Sustained Yield**— You get consistent, uniform quantities of cleaner pulp.

It all adds up to improved performance at reduced operating costs. Complete information is yours on request. Or if you like, we'll gladly have an engineer call.



MAGNUS METAL CORPORATION

FITCHBURG, MASSACHUSETTS

Metalworkers for the Paper Trade

SCREEN PLATES: BRONZE, CHROME-NICKEL-STEEL, AND INCONEL
VALVES: GATE, SWING CHECK, BLOW, GLOBE, ANGLE AND "Y"



are you making
the most of
these facilities?

Unsurpassed Starch
Chemistry Research

... the foremost re-
search men in the
industry direct a
continuing basic re-
search program in
starch chemistry.

Highly Skilled Tech-
nical Service ...

widely experienced
men make on-the-spot
studies concerning
your production prob-
lems.

Practical Engineer-
ing Service ... to

help you apply new
methods, new proce-
dures, in your pro-
duction.

These service links can be
extremely valuable to you
in your various production
problems ... to help you
make better paper more
efficiently and economic-
ally with such uniform
quality products as:—

GLOBE

Starch for the beaters and
for enzyme conversion;

AMIJEL

for the beaters;

CORAGUM

for corrugating; and

LAM-O-DEX

for laminating.

CORN PRODUCTS REFINING
COMPANY

17 BATTERY PLACE • NEW YORK 4, NEW YORK

Substitutions

ARE ALWAYS TROUBLESOME



President:

Corbin, we have been ex-
perimenting with some dif-
ferent sources for our sup-
plies of pulp recently. Have
you noticed any differences
in how they work up in the
beater or on the machine?

Superintendent:

It's my business to notice everything that comes
into this mill and to see that everything that goes
out is O. K.

President:

The substitution of one type of pulp for another
hasn't caused any trouble?

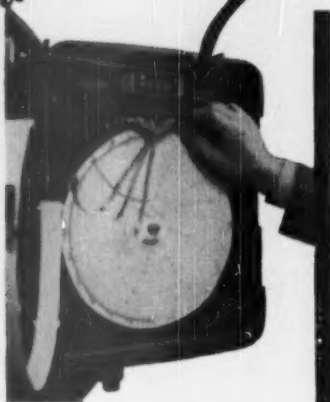
Superintendent:

Substitutions are always troublesome. But we can
lick the troubles that come from any substitution
with one exception—HAMILTON FELTS. I'm
through experimenting with felts — have tried
them all. For every press on every machine there
is a Hamilton Felt that does its work better,
faster, and at lower cost.

SHULER & BENNINGHOFFEN, HAMILTON, OHIO

Miami
Woolen
Mills
Established
1858
Hamilton
Felts

*Accurate
Consistency Regulation
which can be CHANGED
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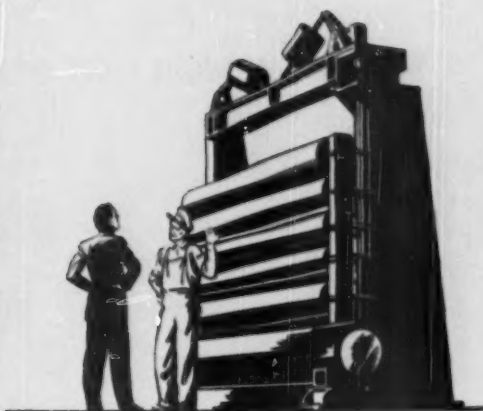
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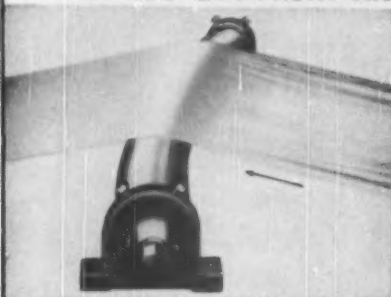
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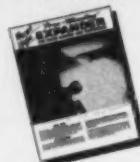
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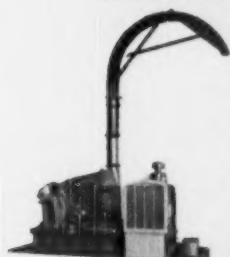
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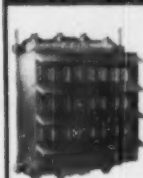


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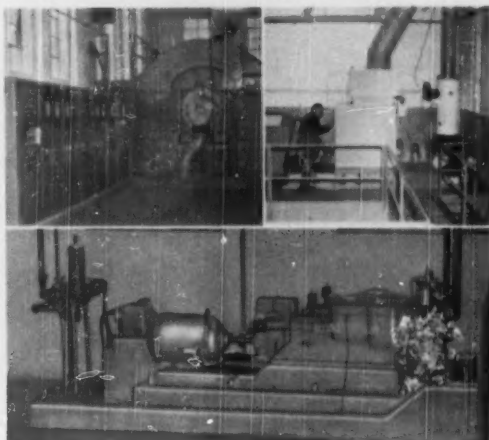


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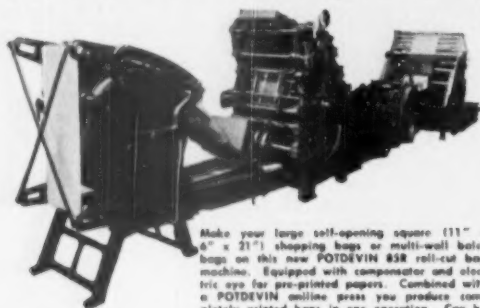
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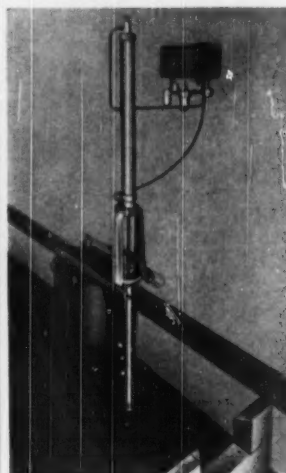


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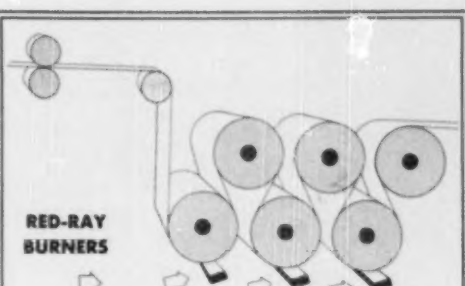
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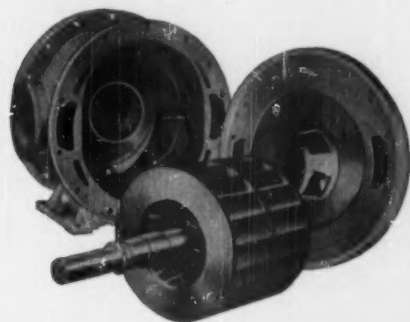
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Of Pulp & Paper, published monthly, semi-annually in April, at Seattle, Washington, for October 1, 1950.

State of Washington, County of King,—ss.

Before me, a Notary Public in and for this State and county aforesaid, personally appeared Miller Freeman, Jr., who, having been duly sworn according to law, deposes and says that he is the business manager of the Pulp & Paper, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the acts of March 3, 1933 and July 2, 1946, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

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2. That the owner is:

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3. None

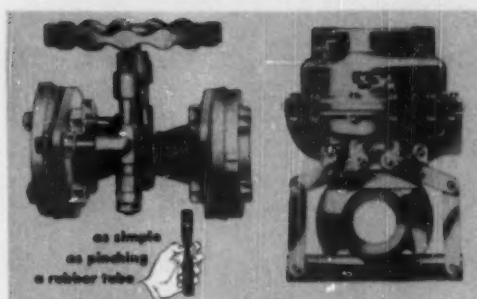
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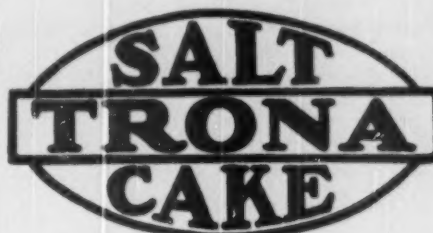
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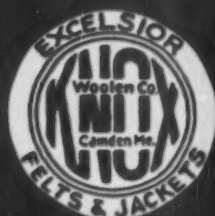
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CAMDEN, MAINE

Pacific Coast Agents

DAN E. CHARLES AGENCY, 1331 Third Avenue Building, Seattle, Wash.

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